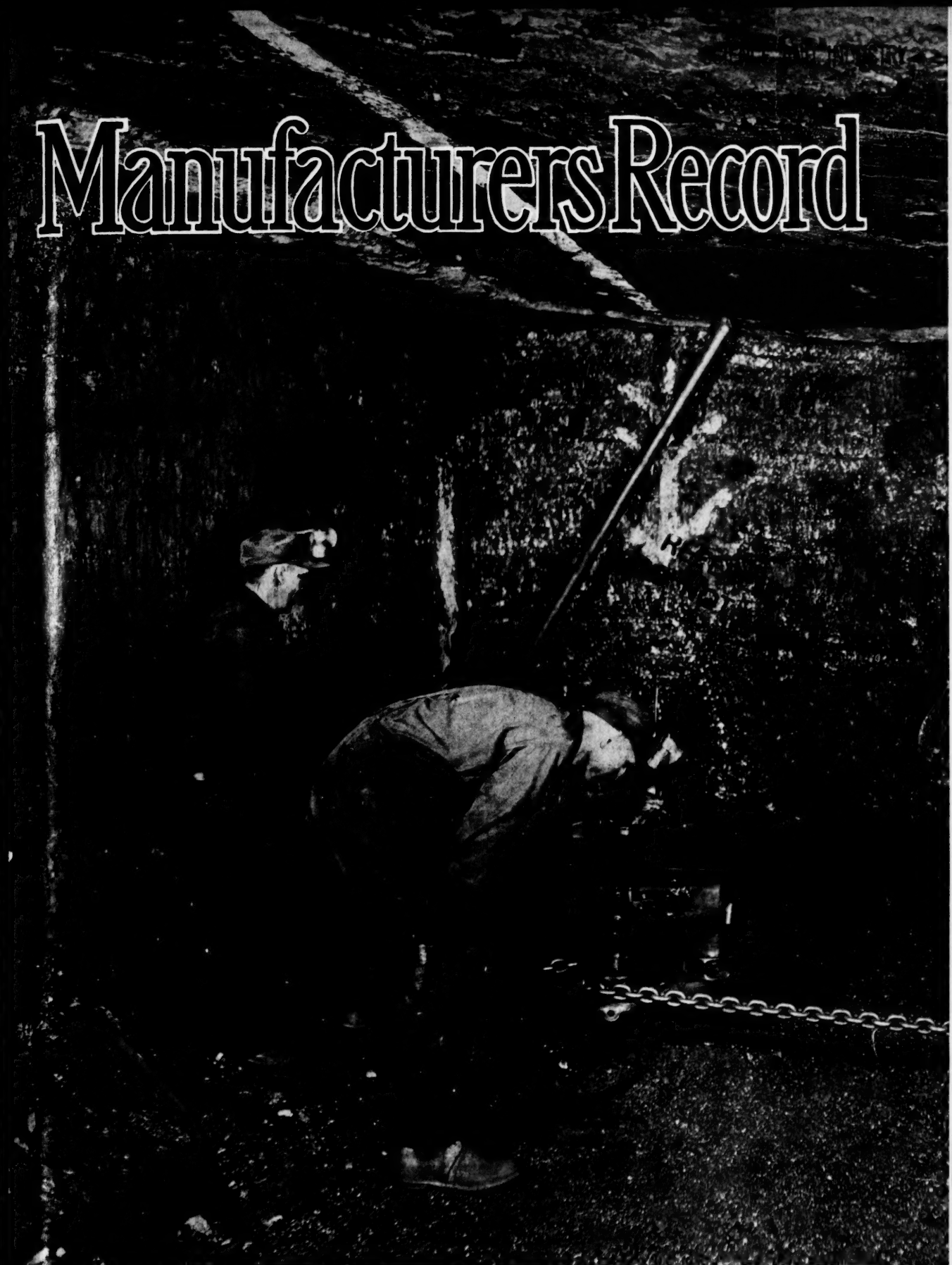
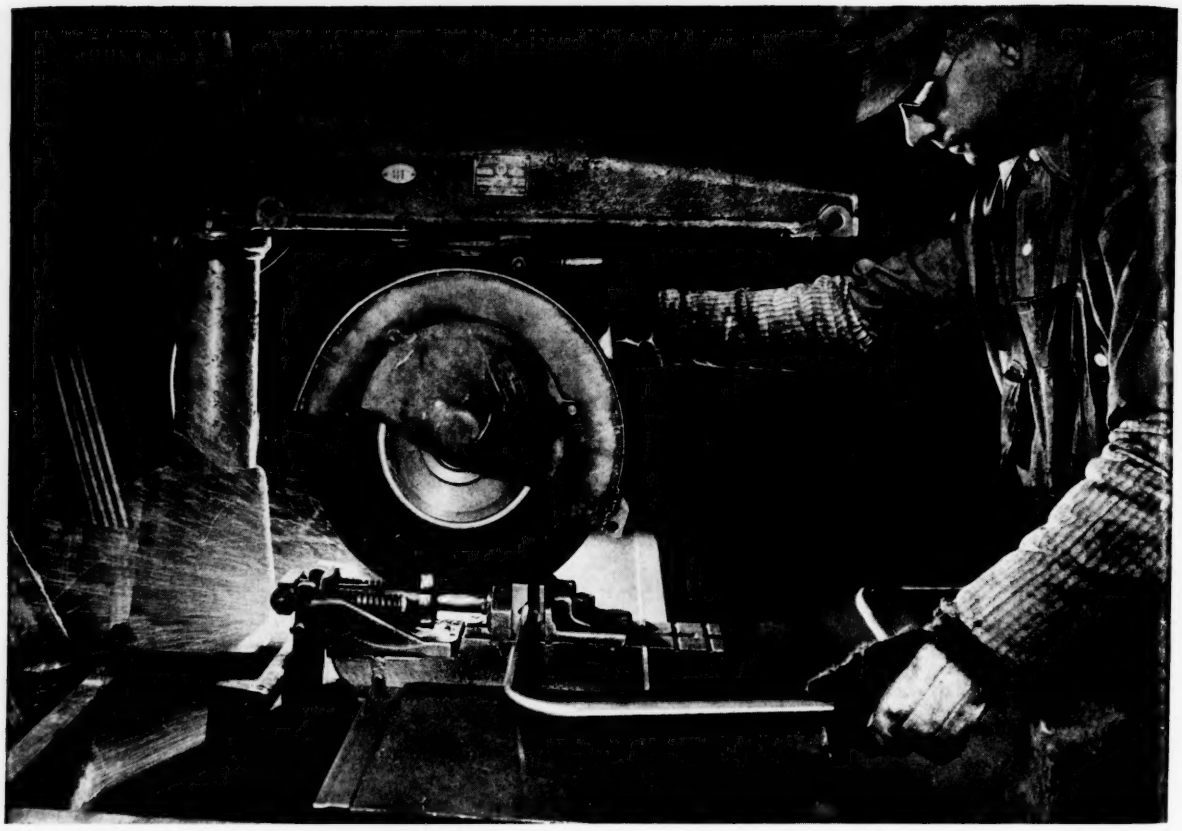
# Manufacturers Record



SOUTH SUPPLIES FIFTY PER CENT OF NATION'S RAPIDLY GROWING COAL OUTPUT



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**MANUFACTURERS RECORD**

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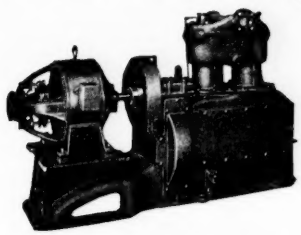

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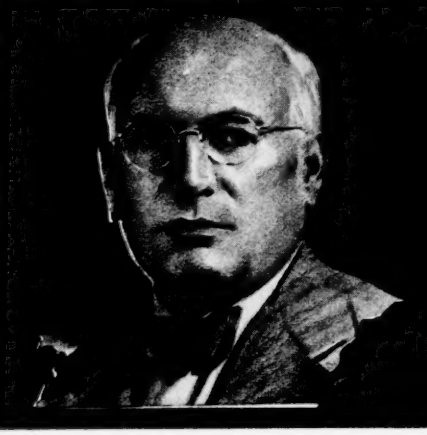
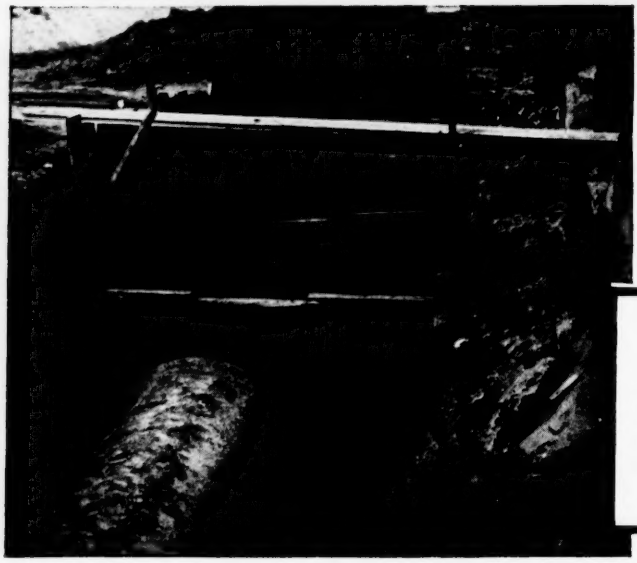
# J.E.GIBSON *writes:*



## LONG LIFE

At right is an unretouched photograph of a cast iron water main now in its 109th year of continuous service to the citizens of St. Louis. Taxpayers are saved millions of dollars every year by the continued service of cast iron pipe long after the construction bonds have been retired and forgotten.



## SALVAGE VALUE

Photo at left shows a 42-inch cast iron water main being relocated at Cleveland, Ohio, after 46 years of satisfactory service. Salvage value is but one of the tax-saving features of cast iron pipe.

**Water mains represent about one-third of this country's 5-billion-dollar investment in public water supply systems. More than 98% of these mains are cast iron pipe with a *known* useful life at least double the *estimated* life of other water main materials. Because the tax-saving, through deferred replacements alone, is enormous, cast iron pipe is known as Public Tax Saver No. 1.**

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## LOW MAINTENANCE

is an economy feature of cast iron pipe that is not confined to Charleston. An impartial survey among 195 waterworks superintendents shows that the maintenance cost of cast iron pipe is *far below* that of any other pipe material which has been in use long enough for the recording of conclusive data.

# NEUTRALITY

THE expected war in Europe has become a gruesome fact. Poland has been overrun, and the determination expressed by the participants to fight until the issue is decided by the defeat of one side or the other presages a long-drawn out horror for the countries engaged and for the rest of the world.

In the effort to preserve peace for this country and in accordance with international law, the United States has declared its neutrality. Most of us have individual sympathies, but the cause of peace demands restraint in expressing thoughts that are not impartial. There are too many unknown factors—most of them pregnant with danger; and the smallest occurrence is apt to become an "incident" overnight.

Dictators control vast populations. Circumstances which have brought them about and the effect of their ideologies upon the rest of the world well may be pondered. This applies to the present as well as the years to come. Their propaganda efforts are vast and are active in every country. Subversive activities in America, as hearings before a Senate Committee have repeatedly disclosed, have reached into high places; and the President in his recent address to Congress, called attention to what he regarded as the necessity of adding 150 men to the investigating forces of the State Department. We have been too complacent in our attitude toward these undermining influences, which for years have been preaching false doctrines to our people and committed outrages against our peace and well-being, by reason of our tolerance. The present crisis serves to bring their nefarious work into sharp relief.

No thoughtful person wants America to be involved in war. The President has rightly announced our neutrality and called upon us to do nothing and say nothing that will reflect any bias in our feeling toward the combatants of Europe. He has referred to the inability of the individual to control his thoughts or his conscience, and it is doubtful if human beings with human emotions ever can be perfectly neutral in thought about anything. We can say we are neutral, but when we try to prove it, we show we are not.

What will be the aftermath no one can foresee. The extent to which civilization in all parts of the world will suffer depends on the duration of the conflict. But we may be sure in these latter days of instant communication, the effect upon neutral countries will be something not to be gauged by temporary money gains, but by the long uphill climb that civilization may have to make from the depths of chaos.

Self-control can prevail over utterance and thought fail of expression and thus neutrality is practiced until emotion wins. Collective thought along a chosen line can work wonders in controlling emotion and impulse.

Let our aim and purpose and prayer be that America be spared.

# A Father Asks— A Teacher Answers

A father tells of the son he has brought into his business. "My son had had the benefit of a college education, but has no training of any kind in manufacturing, nor how to work with his hands. It will take him years to know how to solve the mechanical problems that arise every day in our factory. If he starts in the shop at the bottom it will take at least five years to teach him and he must know how to operate the shop before he can do work of an executive kind in the office. In fact, five years for office details would be none too long.

"We are paying a lot of money for the higher education of American youth and I don't think the cost should be counted if we get results, but I am wondering if the universal demand for a college education isn't taking out of the market a supply of possible skilled workers who are sadly needed. As I see it, the Labor Unions have made a mistake in limiting apprenticeships and considering mere numbers of members in their unions ahead of merit. Some of our largest plants do not know how they will make out when their present skilled labor passes on. This is part of the urge for labor saving machinery.

"It seems to me it is a serious condition that can be corrected only by awakening a general consciousness on the part of parents and youth too that you can't operate a factory successfully until you know how to run the machines. Certainly you could run the business better if you did.

"Can't we combine education of the hands with education of the mind over a wider field than now?"

To the above a teacher replies as follows:

"The question raised by the father is of vital concern. "Can't we combine education of the hands with education of the mind over a wider field than now." The answer is "Yes," but the movement is not likely to grow very far or fast as long as the prevailing attitude and program of our institutions of higher education continue.

The principle of democratic education is admirable, but when carried into the realm of higher education it becomes a fallacy if based upon the presumption, as at present, that all who enter the portals of our colleges and universities are possessed of an equal mental capacity. Such a presumption must of necessity result in the lowering of standards, a fact which is proven by the thousands who annually are graduated who could never graduate if the standard was as high as it should be. To assume that all students who enter our colleges have the same mental capacity is not only fallacious but dangerous, uneconomic, and unkind both to the country and the individual, besides doing much to destroy the native or inherent common sense and philosophy of the individual.

One might ask "What is the purpose of a university?" Obviously, the answer's will vary but, in my opinion, it should exist for two purposes. One to broaden the mind of childhood into adulthood whereby the student is equipped with a background in order to become educated in the every-day life of this world of ours. Secondly, having received the rudiments of education and being possessed of the ability, the student then proceeds to make contributions of a specific character to the world's well being.

Is this what our colleges and universities are doing? Perhaps, but they are certainly not doing it as thoroughly as it should and could be done.

There is no gainsaying the fact that even though we send every one of our boys and girls to college there still is going to be a demand for laborers, store clerks, and others for whom a college education is not only useless but emphatically harmful as long as the system remains what it is today. Let us take a hypothetical case. As a matter of fact, it is far from hypothetical for I have seen too many cases of this sort to regard the matter as anything short of pathetic. A boy has been carefully schooled and finally graduates from high school. The going has been hard and he has only just made the grade. He and his parents have been tutored in the belief that it is his right to have a college education. We will assume that he is hardworking and not below the average, but for four years he plods steadily along, course by course, struggling to absorb and retain the facts which he is taught in each successive classroom. He cannot digest that which he learns and consequently cannot place things in their right perspective. What he learns is "specific" to him and not the stepping stone to a wider field ahead. Eventually he graduates. From every point of view, that boy was cut out to be a clerk in a hardware store. His four years have not only failed to provide him with information and material for the field he is going into, but, on the contrary, has done three things. First, it has deprived him of four years' practical experience in the hardware business, which includes not only knowledge but salary. Second, regarding that which he has learned solely as facts and being unable to digest them, he presumes to know far more than is actually the case and consequently becomes dissatisfied with his own lot and blames his inability to succeed upon an economic system which he is incapable of fully comprehending. Third, it has failed to teach him that to which he might turn for the occupation of his leisure time and improvement for the years ahead.

You think this is an isolated case? By no means. I have seen enough of these and worse to give one a nightmare.

Unfortunately, this is only one side of the question. These individuals' presence in the university

constitute a very real drawback to the brighter students. No student in any college pays anywhere near what it costs to keep him there, so that the mere presence of students to whom the education will not be an asset is, in itself, a financial hindrance to the better ones. Then again, with such a preponderance of average or, shall we say mediocre students, a professor is obliged to pursue a medium course thus restricting the possibilities of the brighter students. The truth of this condition can be attested by almost any college professor. One can only reach the conclusion that our colleges and universities are not accomplishing all that they might. If the enrollment were smaller, deserving students, that is students with a mental capacity sufficient to benefit from the education received, would have a greater opportunity to benefit themselves and society. Finally, a certain proportion of the money now being expended for higher education would produce incomparably better results if expended on vocational training. Let us face the facts and admit to our colleges only those students who are capable of benefiting thereby.

Let us raise the standard of entry and make that standard a national one. This could be done by an examination carefully formulated by a national board elected from all the states and required to be passed by *all* students who wish to enter any university. Such an examination should not only be a test of actual knowledge but, even more important, a test of the student's mental capacity. By all means preserve the principal of democracy, but let it be in the form of equal opportunity. Whether a student be rich or poor doesn't matter. What matters is that the individual and society shall benefit if the student has the ability. Fewer graduates of a higher standard accomplishing more in our universities and more vocational institutions training youths in useful, profitable occupations will go far toward solving many of our economic and social problems of today and tomorrow.

## Charles M. Schwab

The United States lost one of its best and truest citizens when Charles M. Schwab passed away last month at the age of 77 years. He was loved by thousands and that is his enduring monument.

Not his wealth, not his business success, although both were great, but he has left the greater impress of simple, unaffected kindliness upon the lives of his fellows. His optimism was contagious; his faith in the future of America inspiring. It was a land of opportunity. Everything would work out all right in his philosophy, no matter how dark the skies, and his contribution to the growth in steel production which reached in his lifetime the undreamed of figure of 56,000,000 tons can hardly be estimated.

No one could meet "Charlie" Schwab without realizing they were in the presence of a rare personality. Modest about his achievements and deprecating reference to them, he loved people and they loved him. He was a salesman without a peer, a builder of enterprise from small beginnings to giant proportions, but he was the same man unvaryingly to the humblest in the steel yard that he was to royalty at the banquet table. Inimitable as a speaker, he was at his best at the semi-annual dinners of the Steel Institute at the old Waldorf, when 700 members always called vociferously for "Charlie" to talk to them before the evening ended.

He built a palace on the boulevard, but never lost his love for the town of Loretto, Pennsylvania, and its people.

Of Charles M. Schwab it well may be repeated, "He walked with kings nor lost the common touch."

## Business Outlook

Whether the duration of the European war is long or short, it has spurred the improvement which was already taking place in American business. Defense requirements for which many millions are to be spent will contribute to activity in many lines, and in a similar way as the building of ships calls upon the resources of all the states, so will the needs of the railroads which are now making purchases larger than have been made for a long time.

Our foreign trade will be stepped up by the inability of warring nations to fully meet the requirements of their customers in other lands. It is well, to remember, also, there is a vast backlog of demand here created by years of depression when comparatively little buying was done. It will take a lot of production to catch up with these various requirements.

Private industry is getting its plant in readiness. Steel demand at nearly 84% of capacity, if kept up, would mean an annual production of 61,372,000 tons. In 1938, a low year, production was 28,350,000 tons. Coal production has jumped. In a late week of September it was 9,200,000 tons. Ships are waiting in line at various points to load cargoes of coal for other ports here and abroad. Idle mines are being made ready for production. Wheels long motionless will soon begin to turn and there should be material decreases in the number of unemployed.

*When a field of sugar cane is ready, the men start to work cutting the cane close to the ground with their large knives or machetes. Two more cuts to remove the leaves and the top and the cane is ready for shipment to the sugar house where the juice is extracted and turned into raw sugar.*

# Current Sugar Situation Important To South

THE recent flurry of sugar purchasing occasioned by the outbreak of hostilities in Europe serves to emphasize, if not a misunderstanding, at least a lack of understanding concerning America's sugar industry and particularly its cane sugar industry which is entirely confined to two Southern states—Florida and Louisiana. This occurrence also emphasizes another fact, realization by the public of the importance of sugar as an indispensable food which requires no home processing to make it usable. Actually, sugar is a one hundred percent pure food with a food value equivalent on a dollar basis to from five to eight times that of bread, butter, or meat.

In order to understand better the position of our own sugar industry, it is both essential and interesting to examine some of the facts, historical and immediate, concerning sugar production and consumption for the entire world as well as for the United States.

Of the approximate 35,000,000 tons of sugar now being produced annually in the world, some 23,000,000 tons are from sugar cane and about 12,000,000 tons from sugar beets. Sugar cane is a product of the tropic and semi-tropic regions but sugar beets on the other hand are the product of temperate zones. It is not intended here to go into the history of sugar beet production, but for the purposes of adequate understanding it is necessary to point out that following the curtailment of cane sugar supplies to France from the East and West Indies by England during the Napoleonic wars, Napoleon lent every encouragement to the development of a domestic industry based on sugar beets. This action was followed by other countries until, at the outbreak of war in 1914, nearly every European country was able to supply virtually all their own beet sugar requirements.

The consequences of the World War on the sugar industry were dire. Lack of available man power together with other hindrances reduced European beet sugar production to virtually nothing. To fill this curtailment, extraordinary efforts were made in other parts of the world. Among the countries most involved in this expansion was Cuba, which, prior to 1914 averaged only about one and a half million tons of sugar per year. This later was stepped up to almost four million tons by the end of the war. But with cessation of hostilities, Europe once again turned to sugar production and soon returned to normal output.

Sugar had become a great source of wealth to Cuba, not only because of the shortage in Europe, but also due to the dwindling source of supply in the United States. Cuba continued to expand production. Between 1920 and 1930, not once did Cuban production fall as low as three and a half million tons and on two occasions exceeded five million tons. From then till 1933 Cuban production fell rapidly to two million tons. Chaotic conditions prevailed in the island and the situation was not much better in the United States where sugar production was once again on the increase and where Cuba was now once again finding her major sugar market.

In 1934, on the recommendation of the President, Congress passed the first sugar quota legislation that through continued enforcement has given rise to much controversy. In this connection, it is interesting to note Mr. Roosevelt's insistence, again expressed in his recommendation for continuance of the sugar quota system in 1937, that "In order to protect the expansion of markets for American exports, I recommend that no decrease be made in the share of other countries in the total (sugar) quotas." In view of the fact that Cuba is by far the most important foreign country concerned in our sugar problem, it is permissible to assume that it was Cuba to which the President referred. If this is true, then it would appear that restriction of our own production to provide a market for Cuban sugar, which in 1937 had an estimated value for raw and refined of about $105,000,000, is a terrific price to pay for the retention of our own export trade to Cuba which, between 1926 and 1930 averaged less than three percent of our total export

trade—$133,245,000 compared with $4,687,788,000.

At the end of 1903, the United States tariff on all foreign sugars was 1.685 cents per pound. From then till March 1914 the same duty prevailed for all foreign countries except Cuba where the duty was reduced to 1.348 cents. Thereafter Cuba continued to enjoy a preferential tariff in relation to other nations. Finally, in September 1934, though the tariff for all other countries remained fixed at 1.875 cents, the tariff on Cuban sugar was reduced from 1.5 cents to 0.9 cents per pound.

But in addition to a favored-nation-duty, Cuban sugar markets in the United States have been continuously protected since 1934 by the sugar quotas. Specifically, the Act, under which the Secretary of Agriculture now makes quota allotments, provides that each December the Secretary shall determine the amount of sugar required to meet consumer needs during the succeeding year, based upon the amount consumed during the twelve month period ending October 31 prior to the calendar year for which the determination is being made. When the figure is arrived at, 55.59 percent (but not less than 3,715,000 tons) is allocated as follows: Domestic beet sugar, 41.72 percent; mainland cane sugar, 11.31 percent; Hawaii, 25.25 percent; Puerto Rico, 21.48 percent; and Virgin Island, 0.24 percent. The other 44.41 percent is prorated on the basis of 64.41 percent to Cuba, 34.70 percent to the Philippines, and 0.89 percent to other foreign countries. From the foregoing it will be seen that the United States market for Cuban sugar is assured at the same time that it enters this country under a preferential tariff and is produced without regulation as to acreage, labor and wages, and manufacturing conditions. On the other hand, producers of sugar in the United States are restricted as to acreage, the wages and hours under which wage earners may be employed, operation of plants, and the age limit below which children cannot be employed.

The introduction of sugar cane to America dates from about 1751 when two ships transporting soldiers to Louisiana stopped at Santo Domingo and while there the Jesuits were permitted to put on board some sugar cane and negroes trained in sugar cultivation for the use of their Jesuit brothers in Louisiana. These canes were later planted on the plantation of the Jesuit Fathers which is now the site of the present city of New Orleans. The Jesuits made no attempt to manufacture sugar and the cane was sold only as a confection. As a matter of fact the first efforts at sugar making, conducted by two Spaniards, Mendez and Solis, met with failure. These two men then proceeded to make an alcoholic beverage known as Tafia which was so freely imbibed by the populace that it eventually caused considerable concern to the authorities.

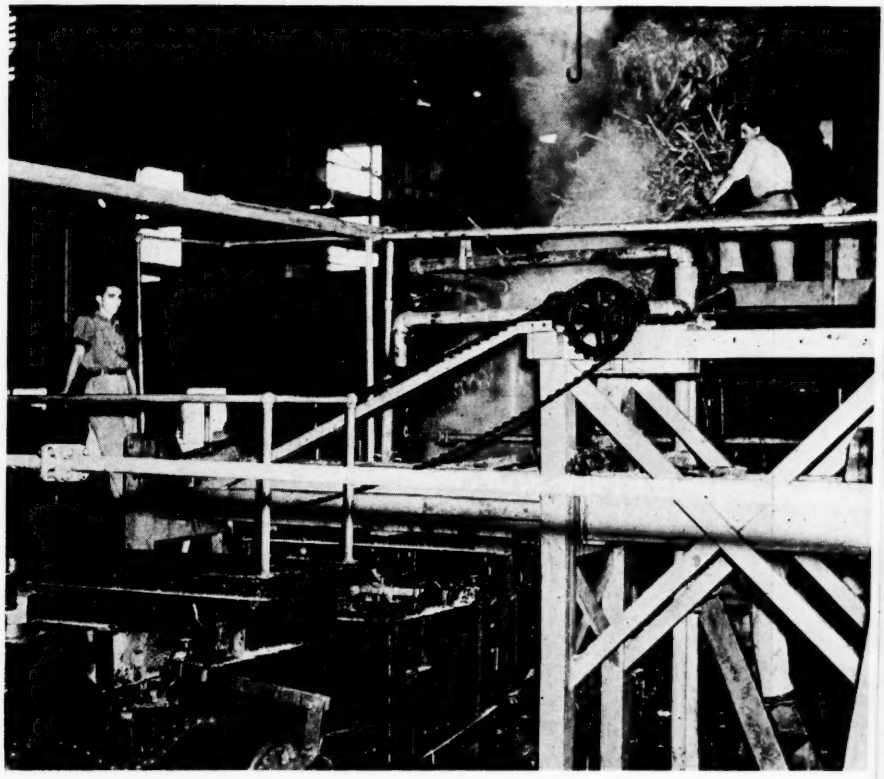
During this time, Louisiana's principal crop, indigo, was faced with extinction as a result of development of synthetic dyes in Europe. Louisiana was compelled to seek other crops. Then in 1794 Etienne DeBore obtained some sugar seed cane and planted it in the ground which now comprises New Orleans' Audubon Park. As the cane grew to maturity, DeBore built a mill into which he proceeded to feed the cane as it was cut. With almost the entire local populace watching and asking "Will the juice crystallize and make sugar?" the juice was boiled. The experiment was successful and the finished product sold for $12,000; a large sum in those days.

The success of DeBore's experiments as planter and manufacturer encouraged others to engage in the cultivation of cane, and it was not long before a large and prosperous industry had grown up in Louisiana to replace indigo.

As the industry thrived, processing of cane into sugar became a routine matter. Labor used in cutting and harvesting was plentiful; manufacturing costs were low, and legislation restricting development of the industry to the fullest extent of market demands was an unheard of thing. As the business prospered, so prospered Louisiana. Some of her greatest fortunes grew out of the sugar industry and this accumulation of wealth furnished the incentive for other types of business which provided work for additional thousands of workers.

Development of sugar cane on a commercial basis resulted in an immediate demand for transportation facilities to meet the needs of expanding business. As these facilities were provided, the employment quotient for all types of labor grew to large proportions—large for a state whose sole efforts up to that time had been devoted strictly to agriculture.

Then in 1912 it was noticed that yields in some parts of the state were beginning to fall off, but due to agronomical factors it was not until 1920 that it was definitely ascertained that Louisiana sugar cane had fallen victim to the dread mosaic disease. Fortunately the United States Department of Agriculture had forseen such a possibility as this occurring and knowing what a scourge such an epidemic can be (mosaic has at different times nearly eradicated the industry from some parts of the world), they had imported some of the famous Proefstation Oost Java canes from the Argentine where they had



*The railroad car full of cane is placed on a hydraulically operated tilting table from which the cane is emptied into a receiving pit. In this photograph the cane can be seen as it slides down inside the pit and on into the shredder.*

overcome the disease in that country. From these and other early canes Messrs. Elliot Jones and D. W. Pipes, Jr. of Houma, Louisiana, obtained a small quantity of seedlings for commercial planting. However, it was some years before the new varieties were generally accepted by the planters and by 1926 when the tide was satisfactorily turned not a few plantations had been abandoned and many sugar houses were in ruins.

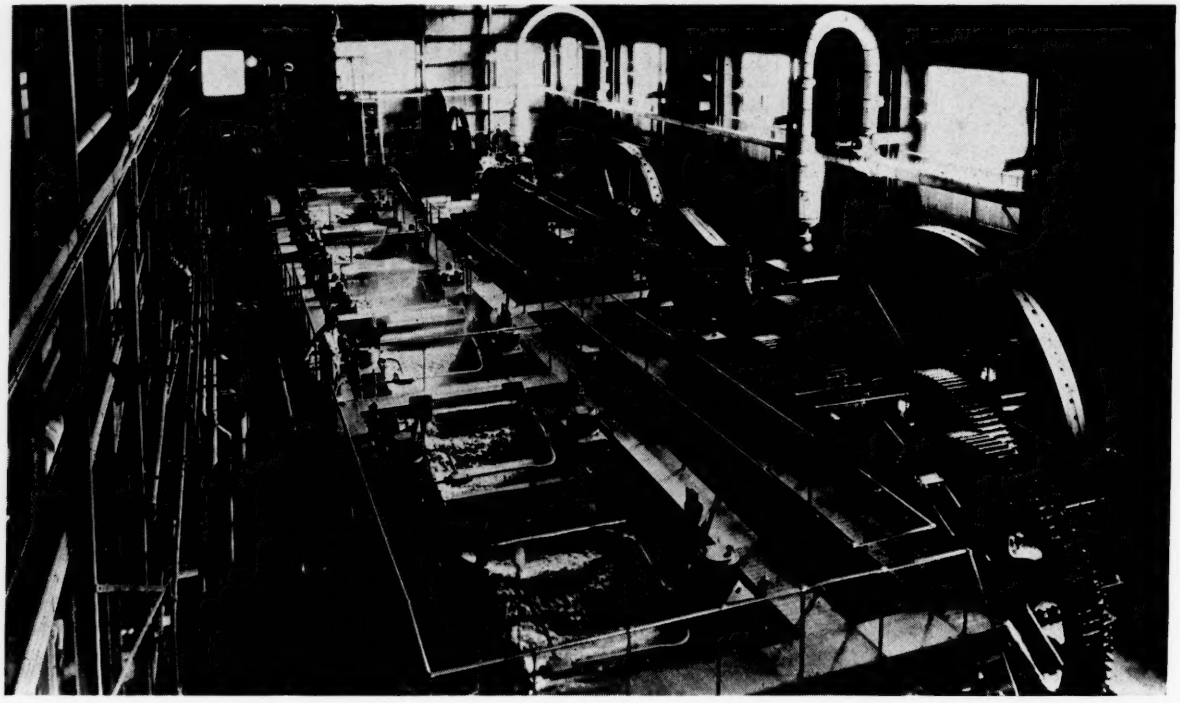
Meanwhile, though sugar cane is known to have been grown in Florida since the early days of the Spaniards, it is only since about 1880 that sporadic attempts had been made to develop commercial sugar cane production in Florida. The site selected was that known as the Everglades in south Florida, a tract of some four and a half million acres and included in the region ceded to Florida by the Federal Government under the terms of the Swamp and Overflow Lands Act of 1850 whereby Florida was obligated to drain and develop the area. Early attempts at cane sugar production are stated to have been failures largely because of inadequate water control for while a humid climate is essential for sugar cane, lack of proper drainage is fatal. Then, due to climatic conditions in Louisiana which make it almost impossible to propagate from the flower for new varieties (only the stalk is planted for commercial purposes which ensures perpetuation of the variety), the Department of Agriculture established its cane breeding station at Canal Point and so again aroused interest in the cane sugar possibilities of the Everglades. From 1923 more serious efforts were made to firmly found the industry, but with the failure of the Southern Sugar Company in 1930 it was felt that the end had definitely come. While the company was in receivership, some of the larger creditors and stockholders approached Clarence R. Bitting, president of Bitting, Incorporated, with the suggestion that his organization undertake the rehabilitation of the Everglades sugar properties. After careful study, new capital was raised and the properties were acquired by United States Sugar Corporation in 1931.

A campaign was immediately undertaken to improve the yield and extend the harvest season. The success of this work is demonstrated by a comparison of the first and eighth harvests. The first harvest lasted 108 days, produced 23,913 tons 96° raw sugar from 292,228 tons of cane with a yield of 162 pounds of sugar per ton of cane, and 1.83 tons of sugar per acre-year. The eighth harvest was extended to 174 days and 85,663 tons of sugar were obtained from 805,455 tons of cane, indicating a yield of over 213 pounds of sugar per ton of cane, and 4.11 tons of sugar per acre-year. During this same period sugar house operations costs have been reduced by more than 30 percent and the cost of sugar f. o. b. sugar house have dropped from 2.8 cents per pound to less than 2.1 cents. These are but some of the improvements which the new company has carried out.

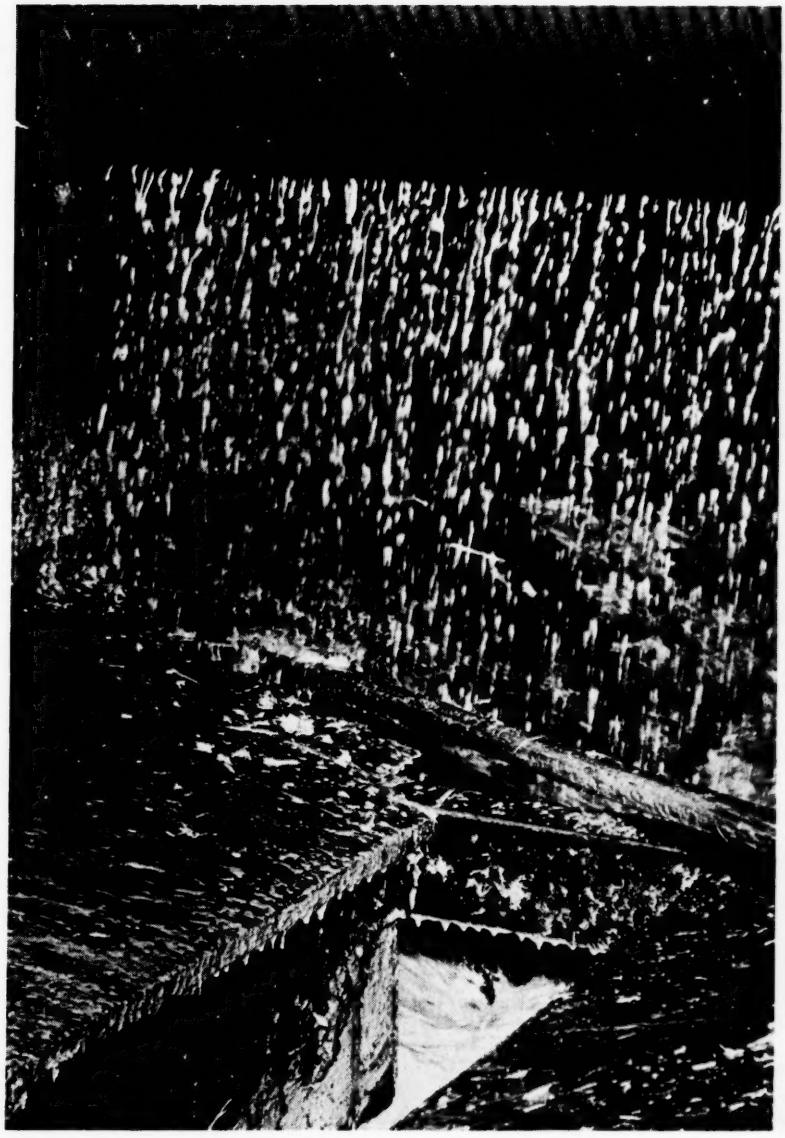
From the foregoing it will be seen that coincident with the rehabilitation of Europe's sugar beet industry, continental domestic cane sugar consolidated its position at the same time that the depression struck this country with such devastating effect.

It has already been stated that world sugar production approximates 35,000,000 tons or about two million tons in excess of present world consumption. Of the more that 32 million tons consumed, the United States consumes about 6,800,000 tons, or close to 20 percent, yet continental domestic production of *all* sugar in 1939 is restricted to aggregate only 2,014,077 tons, made up of 1,584,524 tons beet sugar and 429,553 tons cane sugar. On the other hand quotas for other sources include: Hawaii, 958,994 tons; Puerto Rico, 815,810 tons; Philippine Islands, 1,052,854 tons; and Cuba, 1,954,303 tons. In other words, foreign countries are permitted to supply 3,007,157 tons or almost half our entire consumption under conditions over which we have no control while our own production is federally supervised from the number of acres which can produce to the wages employees may be paid. In return for the latter it is stated that growers are paid benefits ranging from 3/10 cents per pound of sugar for large producers to 6/10 cents per pound for small producers. Yet even these benefits are offset by an excise tax of ½ cent per pound of raw sugar levied against refiners and a similar amount of duty is levied against im-

*After passing the cane through the crusher and grinding tandem shown here, the residual fibre is used as fuel or for manufacturing purposes and the juice is subjected to a liming process before being clarified.*



*From the shredder, where knives slash the cane to pieces, the cane is passed through huge rollers which crush out the juice.*



ported refined sugar. Thus as the world embarks upon another orgy of war, the United States and other countries are found to be largely dependent upon Cuban sugar and it is unlikely that the present low price of sugar will prevail for any considerable length of time. As European stocks decline, supplies will be sought abroad and then the price will rise. The President's recent proclamation removing quota restrictions will temporarily help to keep prices down and prevent a shortage, but in view of foreign surpluses it also throws our market open to practically unlimited supplies from abroad, in spite of the automatic return of a tariff of $1.50 per hundred pounds of Cuban sugar from the old 90 cents in force under the trade treaty, because our own producers are completely unequipped to ease the situation as a result of crop acreage restrictions. The big question is whether Cuba and off shore producers will conserve their stocks against future demand and whether American producers will have time to expand sufficiently to take care of a larger proportion of this country's needs. American producers *can* supply the major part of our requirements and they will if given the opportunity; and if they do, will they be assured of a non-return to quotas restricting output to former levels? There should be no fear regarding higher consumer costs if this country produces its own sugar and the tariff is properly adjusted. Producers have demonstrated their ability to provide the American public with the finest quality sugar at prices equal to that of foreign countries.

An indication of what increased sugar production would mean to the South can be gathered from the fact that in Louisiana at present there are 72 factories engaged in the work of processing cane into sugar, while back on the farms there are more than 100,000 laborers who see to the planting and harvesting of the crop. Other thousands are employed in the manufacture of bagasse, a by-product of sugar cane, into building board which is shipped to the four corners of the world.

Now a word about cane sugar production.

As already stated, neither seed nor flower are used for commercial sugar cane planting. Instead, the cane stem itself is planted in long pieces and from each node or eye a stool with shoots develops into a root system. Until the time for harvesting arrives, the plants are carefully cultivated, then, when a field is ready the men start to work cutting the cane close to the ground with large knives known as machetes. Two more cuts, one to remove the leaves and the other to remove the sucroseless top, and the bar stalk is thrown on a pile from which it is loaded into wagons having a capacity of four to five tons each. When six to eight of these wagons are loaded they are hauled by tractor to the loading hoist which weighs and transfers the cane to railroad cars. Each day locomotives make the rounds of the hoists to drop off empty cars and transport the loaded ones to the sugar house.

The car is now moved to a hydraulically operated tilting table where the cane is emptied into a receiving pit.

From then on the cane moves rapidly on conveyors to the shredder where knives slash the cane to pieces. Other conveyors then deposit the shredded cane in the crusher where most of the juice is extracted. Any residual juice is recovered as the cane passes through the train of rollers. The fibre or bagasse which remains is sometimes used as fuel but more often is used for manufacturing purposes.

The juice is then subjected to a liming treatment and boiled before being clarified and sent to the evaporators for removal of excess water. The heavy syrup then remaining is sent to crystallizer pans where, after crystallization, the molasses is extracted in centrifugals and the raw sugar is deposited in bins prior to bagging for shipment to the refinery. The work of the refinery and the different processes involved comprise a major industry in itself and cannot, unfortunately, be described at this time and place.

# FOREIGN TRADE OPPORTUNITIES

THE outbreak of hostilities in Europe and the involvement of almost the entire British Empire has already caused a major dislocation of world foreign trade. If this war should be protracted over several years as would now appear to be the case, the consequential changes in origin of existing neutral countries' imports and exports are likely to be extremely great. At the present time it is virtually impossible to gauge the ultimate effects partly because of the many unknown factors, among them, the existing stocks on hand. Other important factors that will weigh heavily in the determination of future events are the substitute synthetic commodities many nations will be obliged to resort to, and the disruption of nations' domestic and foreign financial standing.

It is therefore too early to do more than hazard a guess as to what the future holds.

The one thing which seems reasonably certain at this time is the partial, if not complete breakdown of trade between Germany on the one hand and Latin, or Central, and South America on the other hand. There is also, of course, a complete breakdown of trade between Germany and France with the latter's allies the British Empire. As far as this country is concerned however, and particularly the South, Germany's trade with France and the British Empire is not of such immediate importance as Germany's trade with the twenty odd South American countries. In this latter connection American manufacturers have a golden opportunity. However, it should be carefully borne in mind that if post war repercussions are to be avoided, our industrial expansion should be along sane, rational lines. The United States already holds first place in foreign trade with our neighbors to the south, but the position has not been consistently maintained in every commodity field. Germany has, in several instances replaced the United States as principal supplier because of the low purchasing power of most of the South American people and consequently those countries are very definitely a price market. Finally, it should be remembered that Germany will make every effort to maintain her foreign trade markets.

As far as the South is concerned the opportunity is preeminent. In the states south of the Mason-Dixon Line is being produced or manufactured a considerable quantity of the products now imported into South American countries and through the medium of adequate existing transportation facilities to South Atlantic and Gulf ports, southern business firms are ideally located particularly in a geographical sense to further build a permanent foreign trade with South America.

In 1938 the total value of all exports from Germany to South American and adjoining countries aggregated 622,716,000 Rmk. or, on the basis of pre-war exchange, about $250,332,000. The following sections will give an idea of the extent of the various countries' principal imports from Germany showing not only the percentage Germany supplies of a given commodity but also the relative position of imports from Germany as compared with other countries. Where possible the other principal sources of supply are indicated with the percentage of the commodity they supply.

It should be carefully noted that there is a distinction between the use of the two terms imports and exports as applied to the same commodities leaving one country and entering another. Exports, which often include re-exports, are not as carefully checked and recorded as are imports. However, it is not possible in every case to give import figures and consequently both import and export figures are used in order to present as complete and accurate a view of the situation as it is possible.

In subsequent issues the MANUFACTURERS RECORD will publish further information and details concerning world foreign trade, meanwhile, due to space limitations it is only possible to include a selection of the principal commodities. Any one desiring additional information is requested to write our office.

## MEXICO

Imports of German goods into Mexico in 1937 totaled $27,387,000 in comparison with German exports to Mexico amounting to $18,407,178 in 1938. Among the latter, the principal items were:

| | |
|---|---|
| Hops | $170,850 |
| Semi-manufactures | |
| Rayon | 60,300 |
| Cotton yarn | 88,038 |
| Nitrogenous fertilizer | 151,152 |
| Manufactures | |
| Silk and rayon goods | 224,316 |
| Woolen goods | 98,892 |
| Cotton goods | 411,648 |
| Leather & leather goods | 241,200 |
| Paper and cardboard | 1,137,258 |
| Stone, earthen & porcelain ware | 428,130 |
| Coal tar | 524,208 |
| Steel pipes and tubes | 390,142 |
| Iron plates, sheets | 325,620 |
| Aluminum rods, plates, wire | 293,862 |
| Paper goods | 170,046 |
| Rubber goods | 198,990 |
| Glassware | 457,476 |
| Tools & agricultural implements | 637,974 |
| Copper goods | 298,082 |
| Machine tools | 274,164 |
| Textile, spinning & leather goods machinery | 526,620 |
| Power machinery | 466,320 |
| Pumps and compressors | 63,918 |
| Conveyors | 92,058 |
| Paper machinery & printing presses | 155,976 |
| Autos and airplanes | 324,414 |
| Bicycles | 266,124 |
| Electrical machinery and equipment | 855,456 |
| Pharmaceuticals | 2,486,370 |

## URUGUAY

German goods imported into Uruguay in 1937 had a total value of $4,951,000. German goods exported to Uruguay in 1938 however, aggregated $14,405,670. The principal items among the latter were:

| | |
|---|---|
| Coal | $106,128 |
| Semi manufactures | |
| Silk and rayon, raw and yarn | 104,922 |
| Cotton yarn and thread | 83,214 |
| Cement | 80,802 |
| Manufactures | |
| Silk, rayon & synthetic fiber manufactures | 269,340 |
| Wool products | 230,748 |
| Cotton products | 234,768 |
| Paper and paper products | 506,520 |
| Stoneware, earthenware, porcelain | 330,444 |
| Glass and glassware | 339,690 |
| Coal tar dyestuffs | 238,788 |
| Dyes, varnishes, lacquers | 198,588 |
| Iron & steel pipes and tubes | 193,362 |
| Iron bars and shapes | 1,220,070 |
| Iron sheets and plates | 916,962 |
| Iron wire | 483,204 |
| Miscellaneous iron & steel wares | 1,113,540 |
| Copper goods | 203,412 |
| Machine tools | 222,708 |
| Leather & textile machinery | 408,432 |
| Power machinery | 189,342 |
| Pumps, etc. | 117,786 |
| Miscellaneous machinery | 1,093,450 |
| Autos and aircraft | 1,155,348 |
| Electrical machinery & equipment | 1,281,576 |
| Pharmaceuticals | 371,046 |

## ARGENTINE

In 1938, the total value of German exports to the Argentine was about $59,-208,570. On the other hand, figures for 1937 covering imports of German goods into the Argentine are estimated at $48,-771,000. The principal classifications with supporting data are as follows:

| *Commodity* | *Value (U. S. Dollar)* | *% of commodity supplied by Germany* | *Other major sources of supply with their percent of the commodity** |
|---|---|---|---|
| Chemical & pharamaceutical products | 4,257,307 | 18.7 | U. K. 25.6 & U. S. 22.0 |
| Paper & cardboard | 2,790,930 | 15.1 | Can. 17.8 & Fin. 13.5 |
| Iron & Steel | 10,016,332 | 23.7 | Bel. 21.0 & U. K. 15.7 |
| Machinery & motors excluding elect. apparatus | 3,120,615 | 24.6 | U. S. 34.0 & U. K. 14.8 |
| Agricultural machinery & & apparatus | 373,627 | 4.6 | U. S. 76.5 & Can. 15.3 |
| Vehicles | 5,923,635 | 14.7 | U. S. 53.9 & U. K. 13.0 |
| Metals & manufactures except iron & steel | 2,418,465 | 14.5 | U. K. 36.4 & U. S. 16.9 |
| Stone, earths, glass & ceramics | 1,668,420 | 15.5 | Bel. 17.7 & U. K. 12.8 |
| Miscellaneous | 4,969,455 | 24.7 | U. S. 27.1 & U. K. 9.4 |

## BRAZIL

Though German exports to Brazil in 1938 totaled $64,863,102, imports of German goods to Brazil in 1937 amounted to $79,013,000. General classifications of imports with complementary details for 1936 are:

| *Commodity* | *Value (U. S. Dollar)* | *% of commodity supplied by Germany* | *Other major sources of supply with their percent of the commodity* |
|---|---|---|---|
| Coal & briquettes | 3,493,325 | 39.1 | U. K. 47.5 & Turk. 7.4 |
| Wool yarn | 1,005,840 | 56.1 | Jap. 26.4 & U. K. 7.6 |
| Dyes, aniline or fuchsive | 1,435,005 | 64.6 | Switz. 13.9 & U. S. 7.3 |
| Wood pulp | 955,680 | 26.2 | Switz. 45.8 & Czech. 9.0 |
| Iron bars & rods | 1,101,925 | 79.7 | Bel.-Lux. 12.7 & U. S. 3.4 |
| Wire | 2,609,310 | 70.5 | U. S. 17.6 & Bel.-Lux. 6.9 |
| Tubings, pipes & joinings of iron | 1,446,500 | 51.4 | U. S. 15.4 & U. K. 14.3 |
| Iron superstructure for buildings | 511,060 | 52.3 | U. S. 22.2 & U. K. 8.7 |
| Tinplate in sheets | 1,942,710 | 43.1 | U. S. 45.4 & U. K. 7.0 |
| Smelted, rolled or hammered copper | 686,510 | 32.8 | U. S. 40.1 & Can. 17.3 |
| Locomotives | 1,165,010 | 86.2 | U. K. 9.3 & U. S. 4.5 |

## PERU

German exports to Peru in 1938 amounted to $12,432,654, which closely approximates the $11,660,000 value of German goods imported into Peru in 1937. Among the latter were:

| *Commodity* | *Value (U. S. Dollar)* | *% of commodity supplied by Germany* | *Other major sources of supply with their percent of the commodity* |
|---|---|---|---|
| Cotton & manufactures | 701,860 | 23.5 | U. K. 34.3, Jap. 23.9 |
| Cloths | 385,130 | 22.8 | U. K. 44.8, Jap. 18.3 |
| Wool, furs, feathers & manufactures | 286,330 | 25.4 | U. K. 53.8, U. S. 4.7 |
| Silk & rayon manufactures | 227,430 | 29.5 | Italy 21.9, Neth. 12.8 |
| Metals & manufactures | 1,895,820 | 32.6 | U. S. 36.7, U. K. 9.7 |
| Stone, earths, ceramics, glass, etc. | 626,620 | 46.6 | U. S. 14.0, Jap. 10.8 |
| Colors, gums, oils, paints, varnishes | 450,870 | 17.5 | U. S. 46.9, U. K. 9.4 |
| Paper, cardboard, etc. | 596,790 | 31.1 | U. S. 27.9, Can. 10.8 |
| Tools, vehicles, machinery, except electrical | 1,659,270 | 16.4 | U. S. 65.3, U. K. 9.8 |
| Electrical machinery & apparatus | 355,870 | 18.4 | U. S. 44.6, Bel. 9.6 |
| Chemicals, drugs, & pharmaceuticals | 763,040 | 33.4 | U. S. 38.1, U. K. 8.0 |

(*Continued on page 50*)

*U. K.—United Kingdom; Can.—Canada; Fin.—Finland; Bel.—Belgium; Turk.—Turkey; Switz.—Switzerland; Czech.—Czechoslovakia; Bel.-Lux.—Belgium and Luxemburg; Jap.—Japan; Swed.—Sweden; Fra.—France; Neth.—Netherlands.

## OTHER CONTIGUOUS COUNTRIES

In addition to the countries listed above there are twelve other contiguous countries whose collective imports of German goods aggregated $28,660,000 in 1937. German exports to the same group of countries in 1938 totaled $22,531,612.

Imports into Bolivia in 1937 were valued at $2,879,000 while exports from Germany in 1938 amounted to $3,783,418. The most important exports were: lubricating oil, $264,516; silk and rayon, $198,-900; wool products, $169,242; cotton products, $175,674; iron and steel pipes and tubes, $137,886; railway material, $161,604; power machinery, $143,514; food processing machinery, $138,690; automobiles and aircraft, $137,886; and pharmaceuticals, $173,664.

Imports of German goods to Costa Rica in 1937 totaled $2,748,000. In 1938 German goods exported to Costa Rica aggregated $2,806,362 and included the following among the principal commodities: cement, $118,590; silk and rayon goods, $161,604; cotton manufactures, $214,266; iron and steel pipes and tubes, $201,804; sheet iron, $84,018; miscellaneous iron wares, $221,502.

Cuban imports of German goods in 1937 amounted to $5,845,000 while in 1938 German exports to Cuba were valued at $2,226,422. Among the latter were: cotton yarn, $225,924; coke, $231,552; cotton manufactures, $262,104; glassware, $245,-220; power machinery, $118,590; and pharmaceuticals, $438,180.

To the Dominican Republic, Germany exported goods valued at $984,880 in 1938; the only important classification being automobiles and airplanes valued at $234,376. In 1937, imports from Germany totaled $905,000.

The value of German goods imported into Ecuador in 1937 was $2,885,000 while German exports to Ecuador in 1938 were valued at $2,867,466 including cotton manufactures and miscellaneous iron wares worth $237,984 and $296,676 respectively.

Imports of German goods to Guatemala in 1937 totaled $5,429,000. Exports of German goods to the same country in 1938 were figured at $5,056,356 including cotton yarn, $168,438; cotton manufactures, $510,942; wrought iron pipes and tubes, $910,932; and steel pipes and tubes, $635,562.

Haitian imports of German goods in 1937 amounted to $650,000. German exports in 1938 were only $281,400.

Honduras in 1937 imported from Germany goods to the value of $990,000 while German exports in 1938 were $970,830. The only important item was iron and steel pipes and tubes valued at $213,864.

The value of German goods imported

(*Continued on page 50*)

*The Payroll Machine performs the major part of payroll records and automatically accumulates all desired totals and prints them at the bottom of departmental sheets.*

# Reducing the Cost of Payroll Records

## New Method Cuts Cost From $200 to $75 Per Month

THROUGH adoption of unusually effective methods, the Potter & Johnston Machine Company, Pawtucket, R. I., has succeeded in reducing the cost of writing its payroll records and of compiling and analyzing labor statistics by 62%.

In the opinion of Thayer Durell, Treasurer of the Company, this amazing difference can be explained by the nature of the two systems—the old a costly, indirect plan, the new a procedure aimed directly at final results and complete, understandable records with minimum expense. Just how far costs have tumbled with the new system is illustrated by comparing the previous fixed expense of $200 a month with the present $75 a month, which includes depreciation on a self-liquidating machine investment.

"While our former payroll accounting system was giving us most of the information we wanted, it was rather top-heavy in cost judged from the size of our operation," said Mr. Durell. "In addition to that, our records were not as complete as we would have liked them to be. Time cards were accumulated until the end of the pay period, at which time the payroll was written. In the event that a card was lost or misplaced during that period of accumulation, it was practically impossible to trace the figures back.

"The new system sold itself to us, first because it offered a far more economical way to handle the records. Second, complete records could be obtained with complete information on any employee or any job instantly available at all times. Finally, due to the writing of related records in one operation, the many automatic features of the machine and an efficient method of sorting the media, the new procedure was at least as fast as our old one."

The new plan was put into operation in December, 1938, and, under the close scrutiny of company executives, it began to function smoothly almost immediately.

There are really four phases to the payroll accounting job at Potter & Johnston's: (1). Daily writing of time cards, covering the orders handled by every man in the plant; (2). Daily preparation of individual earnings records for each of the workers; (3). Weekly writing of complete payroll; (4). Weekly sorting of time cards by direct and indirect labor and by job number. In addition, there is the quarterly job of supplying information for Social Security report purposes.

At the beginning of each day, all the factory time cards from the previous day are brought into the payroll department. Each card (Figure A) shows the worker's name, social security number, the date, department number, man (or clock) number, number of hours worked on one order, and the drawing (or unit piece) number. At the bottom are shown the total hours worked that day and the rate of pay for that particular worker. Hours figures on this card are filled in by the employee, and are checked by the payroll department against the actual time-clock figures.

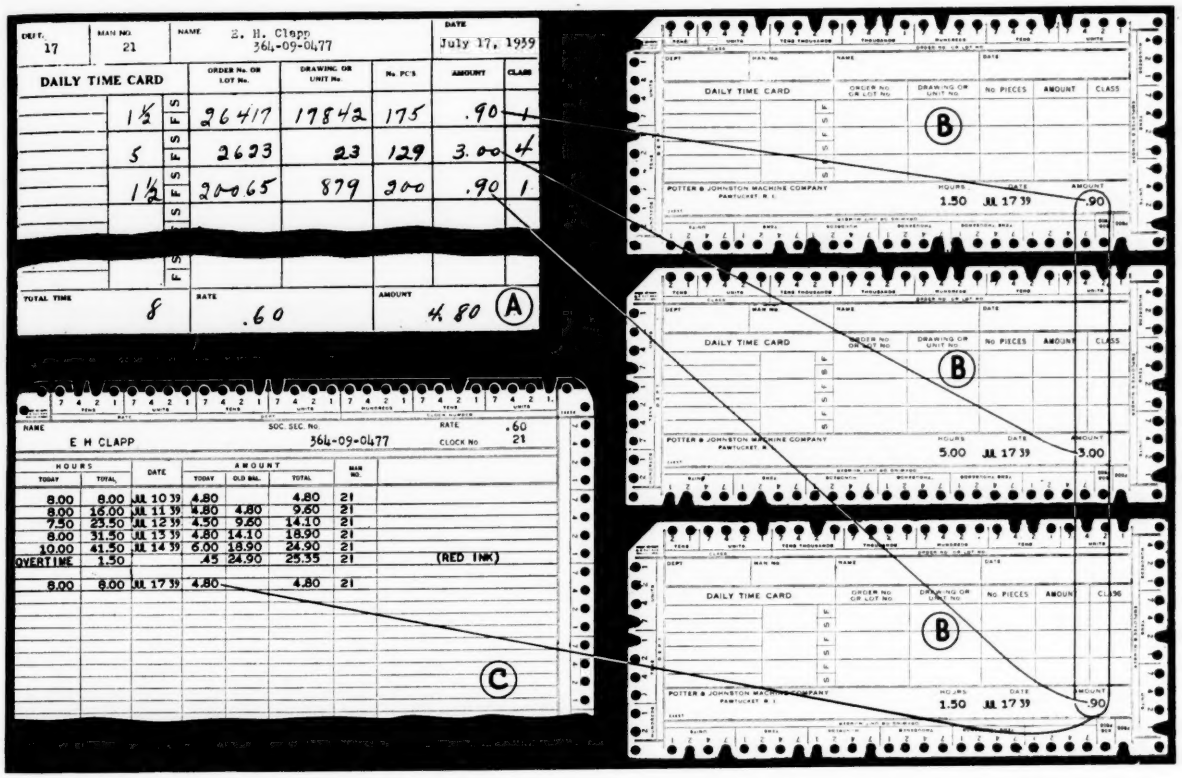
Then begins the writing of a set of labor distribution cards (Figure B) for the office record. Only two entries are made on each of these cards—the number of hours worked and the total pay for that work. The date prints automatically. Entering the number of hours worked, the operator—through direct mechanical multiplication in the machine—multiplies that figure by the rate to obtain the earnings, which print on the card along with the date. The total of such extensions is printed on the employee's daily earnings record. A separate card is made out for each job handled by the worker during that day, and about 3500 cards are handled on the machine weekly.

As a by-product of preparing the distribution cards, the daily individual earnings records (Figure C) are written. This latter form shows hours worked that day, hours worked to date, the date, amount of earnings, amount of earnings to date, and the man's number.

At the end of the week, the overtime for each man is figured, and separate distribution cards are made out, showing overtime data in red figures. Distribution cards representing indirect labor, i.e. not chargeable to a specific job, have a red band across the top to distinguish them from the direct labor distribution cards which have plain tops.

Potter & Johnston pays 350 to 400 employees by cash every week. During busy seasons, the payroll will number about 400, and it has gone as high as 500. For speed and ease in handling payroll records for this personnel, the new system provides for two journals (Figures D and E). the individual earnings record (Figure F), and the employee's statement of earnings and deductions (Figure G) to be written in one operation. A separate journal is written for each of the 38 departments in the plant, one copy going to the shop superintendent, the other being filed in the payroll department.

Each department journal remains in


DEPT. 17
MAN NO. 21
NAME E. H. Clapp 364-09-0477
DATE July 17, 1939
DAILY TIME CARD
ORDER No. OR LOT No.
DRAWING OR UNIT No.
No. PCS.
AMOUNT
CLASS
1½ S E 26417 17842 175 .90 1
5 S E 2623 23 129 3.00 4
1½ S E 20065 879 200 .90 1
TOTAL TIME 8
RATE .60
AMOUNT 4.80
A
NAME E H CLAPP
SOC. SEC. No. 364-09-0477
RATE .60
CLOCK No. 21
HOURS TODAY 8.00 TOTAL 8.00 DATE JUL 10 39 AMOUNT TODAY 4.80 OLD BAL. TOTAL 4.80 MAN NO. 21
8.00 16.00 JUL 11 39 4.80 4.80 9.60 21
7.50 23.50 JUL 12 39 4.50 9.60 14.10 21
8.00 31.50 JUL 13 39 4.80 14.10 18.90 21
10.00 41.50 JUL 14 39 6.00 18.90 24.90 21
OVERTIME 1.50 .45 24.90 25.35 21 (RED INK)
8.00 8.00 JUL 17 39 4.80 4.80 21
C
DAILY TIME CARD
POTTER & JOHNSTON MACHINE COMPANY PAWTUCKET, R. I.
HOURS 1.50 DATE JUL 17 39 AMOUNT .90
B
DAILY TIME CARD
POTTER & JOHNSTON MACHINE COMPANY PAWTUCKET, R. I.
HOURS 5.00 DATE JUL 17 39 AMOUNT 3.00
B
DAILY TIME CARD
POTTER & JOHNSTON MACHINE COMPANY PAWTUCKET, R. I.
HOURS 1.50 DATE JUL 17 39 AMOUNT .90
B

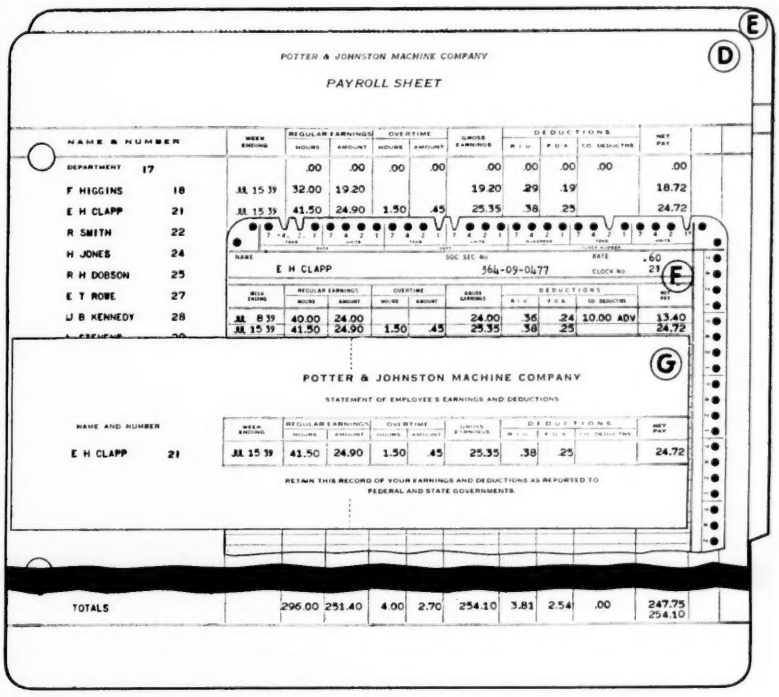
the machine while the operator writes the individual earnings records and employee's statements for that department. With flat, front-feed insertion of these forms, the operator can quickly insert and align them to the correct writing line. The amount of time required for "paper handling" on this job is held to a minimum. Combining as it does both typing and computing mechanisms, this machine permits full typewritten descriptions wherever desired in addition to complete mechanical computation. Further, both typing and computing keyboards have the same type of key stroke (one key at a time) making possible a rhythm of operation that results in sustained speed.

Carriage closed and forms in position, the operator types the man's name and his clock number. Depressing a motor bar causes the machine to tabulate to the date column and to print the correct month, day and year automatically. The number of hours worked is next entered by the operator, and this multiplied by the hourly rate for that worker produces the regular gross pay figure. Incidentally, the multiplication is performed mechanically by this machine, which is the only typewriter accounting machine built providing *direct* mechanical multiplication instead of multiplication by repeated addition. Not only does this feature mean the saving of countless key strokes, but it insures absolute accuracy of computations.

If overtime has been worked, those hours, including fractions of hours, are entered, and they are multiplied mechanically by the overtime rate figure to obtain the total overtime pay. Tabulating to the next column, the operator depresses a single key and prints the total amount of gross earnings.

By direct mechanical subtraction, the various deductions—unemployment insurance payment, Federal old age benefit payment, and any miscellaneous company deductions—are then made. In the event of any company deductions, the typing section of the machine permits identification of such items. Arriving at the net

(*Continued on page* 54)


POTTER & JOHNSTON MACHINE COMPANY
PAYROLL SHEET
D
E
NAME & NUMBER
DEPARTMENT 17
F HIGGINS 18 JUL 15 39 32.00 19.20 19.20 .29 .19 18.72
E H CLAPP 21 JUL 15 39 41.50 24.90 1.50 .45 25.35 .38 .25 24.72
R SMITH 22
H JONES 24
R H DOBSON 25
E T ROWE 27
J B KENNEDY 28 JUL 8 39 40.00 24.00 24.00 .36 .24 10.00 ADV 13.40
JUL 15 39 41.50 24.90 1.50 .45 25.35 .38 .25 24.72
NAME E H CLAPP
SOC. SEC. No. 364-09-0477
RATE .60
CLOCK No. 21
E
POTTER & JOHNSTON MACHINE COMPANY
STATEMENT OF EMPLOYEE'S EARNINGS AND DEDUCTIONS
G
NAME AND NUMBER
E H CLAPP 21 JUL 15 39 41.50 24.90 1.50 .45 25.35 .38 .25 24.72
RETAIN THIS RECORD OF YOUR EARNINGS AND DEDUCTIONS AS REPORTED TO FEDERAL AND STATE GOVERNMENTS
TOTALS 296.00 251.40 4.00 2.70 254.10 3.81 2.54 .00 247.75 254.10

# Chemical Research and Coal

## American Industry Now Able to Supply Virtually All Domestic Needs

BY

**Jessie V. Sullivan**

*Secretary, West Virginia Coal Association*

INTENSIVE scientific research in the growing industrial laboratories of the nation has made America largely independent of foreign sources of supply for materials vital to industry, to the national defense, and to life itself, in contrast to conditions prevailing in 1914 at the outbreak of the world war.

This factual observation of national sufficiency was made by Dr. James K. Hunt, technical advisor of the E. I. du Pont de Nemours Company, of Wilmington, Delaware, at the third annual coal conference held at Morgantown, W. Va., September 27-28-29. The conference, held under the auspices of West Virginia University, is devoted to the promotion of research in bituminous coal.

Without access to the chemicals derived from coal the work of the research chemist directed to the development of new and improved products would be brought to a virtual standstill, Dr. Hunt said, reciting that research had brought into being countless hundreds of things nature failed to provide, products and processes vital to industry and agriculture; products and processes which help to dispel ignorance, fear and superstition, and aid in the dissemination of knowledge, and products and processes which increase the span of life and add to the joy of living.

"Many of you will doubtless recall the situation that obtained in this country 25 years ago when war broke out in Europe," Dr. Hunt told the conference. "Then, many of our industrial activities were dependent upon imports. Employment of millions of our workers was threatened, particularly in the textile industry which was almost wholly dependent upon foreign-made dyestuffs. Even the health of our people was endangered because the importation of many important medical supplies had been cut off. Conditions bordered on panic.

"Today, in sharp contrast, practically every important American industrial and medicinal need is being filled, and, I am confident, will continue to be filled, by American factories on American soil, whatever emergency may arise from the present European conflict. This is due in no small degree to the accomplishments of scientific research during the past two decades.

"This country did not have a single plant in 1914 for extracting nitrogen from the air and transforming this element into the nitrates and other chemicals so vital to agriculture, industry and the national defense. Then we were almost completely dependent upon the importation of natural nitrates from Chile. Today, in contrast, America is self-sufficient in nitrates, through chemistry.

"Similarly, the United States produced less than one-tenth of the dyes it consumed a quarter of a century ago; even that meager proportion was made from imported intermediates. Now a great organic chemical industry that has come into being is supplying all but a trifling fraction of the country's needs, not alone in dyes, but in other fine chemicals. Likewise, it produces needed medicinals in abundance. There is no longer any cause for worry over war abroad curbing our supply of drugs."

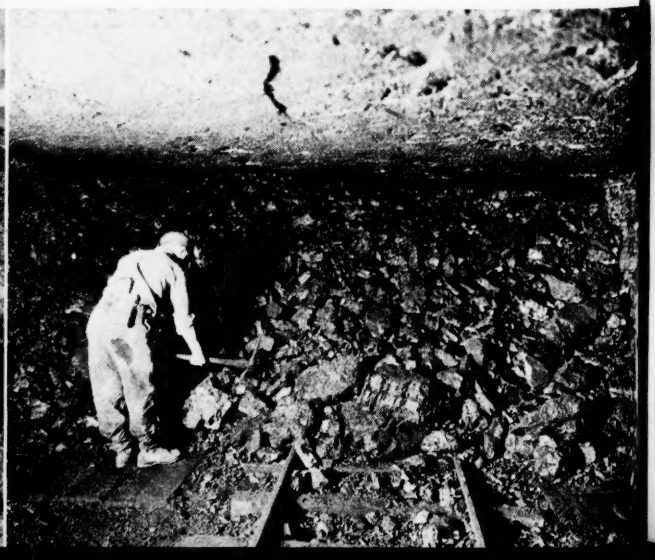
Dr. Hunt gave the conference an interesting recital of our former dependence on Germany for potash, essential to agriculture and industry, methods devised for its economic recovery from our mineral deposits, sufficient, if necessary, to produce all we need. No longer, he said, are we dependent on Europe for our supply of optical glass needed in the manufacture of various instruments vital alike in peace or war. Camphor, he stated, so necessary in the development of photographic film as well as in medicine, was the instrument of a foreign monopoly 25 years ago. Today camphor is produced synthetically from Southern turpentines.

Neoprene, the chemical rubber made from coal, limestone and salt, Dr. Hunt recited, gave every promise of functioning satisfactorily in place of natural rubber as he recalled that rubber was imported from faraway lands under foreign control and that during the world war as supplies dwindled prices pyramided. Today the price of neoprene is less than the cost of natural rubber during the early days of the world war.

Nylon, another achievement of research by du Pont chemists, he declared not only gives better bristles than any taken from the hogs of China or Siberia and is adapted for surgical sutures, but within

(*Continued on page 52*)

***From coal, by means of chemical research, is derived hundreds of by-products essential to our economic independence. At left, two miners are loading a drilled hole with explosives. At right—the coal after being "shot down" in a mine of West Virginia on the Norfolk and Western Railway.***



# The Spending Spree

BY

**Dr. John J. Wicker**

IF a spending spree could make us rich every fool could become a millionaire.

A depression may be one of the largest opportunities a nation has for the development of men, if we meet it properly, but you can never make men by converting the sweat of one man into a silk hat for a prodigal.

When a premium is placed on prodigality and a penalty put on thrift we need a big dose of common sense to cure a bad case of political economic insanity.

The spending program is not new, but is probably on the largest scale ever known. The program is as old as mankind. There have always been a lot of thrifts and spendthrifts.

The Prodigal Son went on a pump-priming, spending program with another man's pocketbook.

There was probably a good deal of prosperity of a kind while the Prodigal was scattering his father's money. There was, however, no real prosperity in the program, but there was unlimited deterioration of character.

Later when the Prodigal stood among the swine, hatless, coatless, penniless and hungry it was the day of recovery.

In the history of the world it has often taken the "driving power of poverty" to get a man to turn his face in the right direction. Plenty, furnished free to many people, is simply an invitation to go down the prodigal road on a spending spree.

For the past six years we have gone with the spending way of the prodigal, journeying from home and losing character with every step. Now let us hope the time has come when the return journey will be made, and once more the time honored, fundamental principles that have made our country great, will become our daily food.

It may be a good thing to prime a dried-up pump once or twice, but when the thing has to be primed every day for years or it won't work, and when it takes more to prime it than the pump gives back, then it is time to change the pump and put in one that will work without priming.

There are some that protest the prodigal's return. The "walking delegates" who are getting a large part of the father's money are advising the prodigal to sit down on the wayside, or form a picket line.

The "delegates" are no longer walking, but are riding in style and getting the biggest pay in their history—all coming from the worker's pocket assisted by "Uncle Sam."

I have yet to find a business man who is willing to apply the New Deal to his own business. He knows it would spell bankruptcy.

How can a plan that would mean bankruptcy for an individual, small or big business, be good for the entire country?

We are paying the largest taxes in the history of our country and notwithstanding the huge income, we are every hour going deeper in debt than at any time since Columbus discovered America.

Twenty-five years ago our Federal budget was a billion dollars a year. Today it is between nine and ten billion dollars and we are adding to our national debt at the rate of between three and four billion a year.

Our national debt is more than forty billion dollars and heaven knows where it will be if we get mixed up in war.

Had all this spending put men to work there would be some justification, but with one-fifth of the population of our country on Government relief, employment, or compensation of some kind, there are still about ten million men out of work.

It does not take any extraordinary sense to see the folly of our spending spree and to continue on in the red is to load taxation, seen and unseen, on our people, heavier with every passing year.

We need a case of genuine repentance, a complete turning around, a practice of economy, thrift and hard work and the return to normal thinking and normal living, just as the Prodigal did, after which he wore a royal robe, a ring on his hand, shoes on his feet and sat down to a bountiful table. We will never get right by prodigality, but it must come by political prudence, and moral reformation.

Our present program makes prodigals but fails to solve problems.

It has been figured that in a city of about forty thousand population it must be finally assessed thirty million dollars in paying back the national debt. For the entire country the Federal debt is eighteen hundred dollars for every family of four. This may mean nothing for the thoughtless and thriftless, and certainly the unfortunate can do nothing about it, but it is something for the rest to ponder.

If today our budget was balanced, and we are farther from it than ever before, it would take five hundred million dollars each year paid regularly on the Federal debt for a period of fifty-six years to reduce the debt to where it was five years ago. Our annual interest today on the Federal debt is over one billion dollars and this is more than the cost of running the entire Federal Government for the year 1915.

But the greatest debt and deficit is not money but manhood, and far more important than words can state is the recovery of men.

From where do we get our great men: Everybody knows, or should know, that with few exceptions they are men who have endured hardships, struggle, and discipline in the "University of Adversity."

These are the man-making agencies when they are met with courage, fortitude and determination.

We can, if we will, convert our depression into more manhood and more money. Will we do so?

## Recognition

At the closing session of the National Industrial Advertisers' Association convention at New York on September 22, the MANUFACTURERS RECORD was presented with an Award of Merit in a competition to determine the best series of articles or editorials round a given subject appearing in trade publications during the year ending June 30, 1939. Though the entries came from many fields of industry throughout this country and Canada, this publication received the award for the series of colored maps and articles published, month by month, between May 1938 and September 1939.

These maps and articles, designed for the purpose of giving concise, factual data in graphic form of the industrial opportunities existing in each of the Southern states, were a part of the program to further the industrial development of the South to which the MANUFACTURERS RECORD has been committed for upwards of half a century.

## Opinion Changed

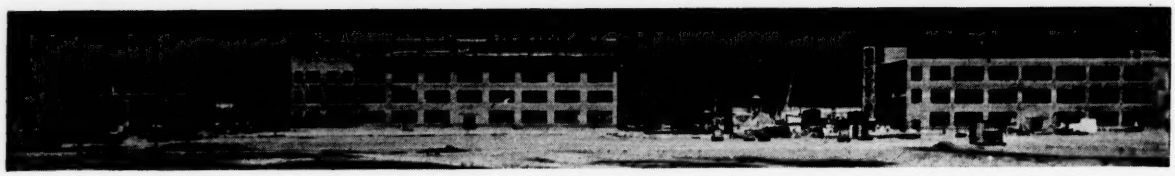
Newbern, N. C.

EDITOR, MANUFACTURERS RECORD:

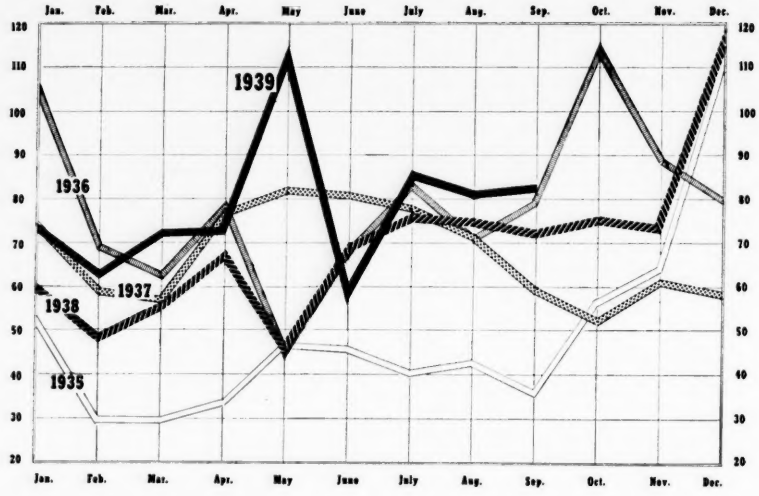
About five years ago I refused to subscribe to the MANUFACTURERS RECORD because it was opposed to the policies of President Roosevelt. I recently subscribed to it for the same reason.

A. M. HONRINE, *Secretary*,
Riverside Iron Works.

August 12, 1939



# South's Construction Swings Upward




SOUTHERN construction during September continued the high level prevailing in the two preceding months, as an upward trend in industrial awards and a sudden rise in governmental electric projects sent the total for the month to $82,378,000. This represents fourteen per cent more than the total for the comparable month of 1938, as well as an increase over August of 1939.

Contracts for the first nine months of this year total $701,293,000, an increase of more than twenty-three per cent over the similar period of last year.

Industrial contracts contributed twenty-two per cent of the September figure, which includes projects of $10,000 and over as tabulated by the CONSTRUCTION daily bulletin. The increase was due in part to renewed activity in railroad work.

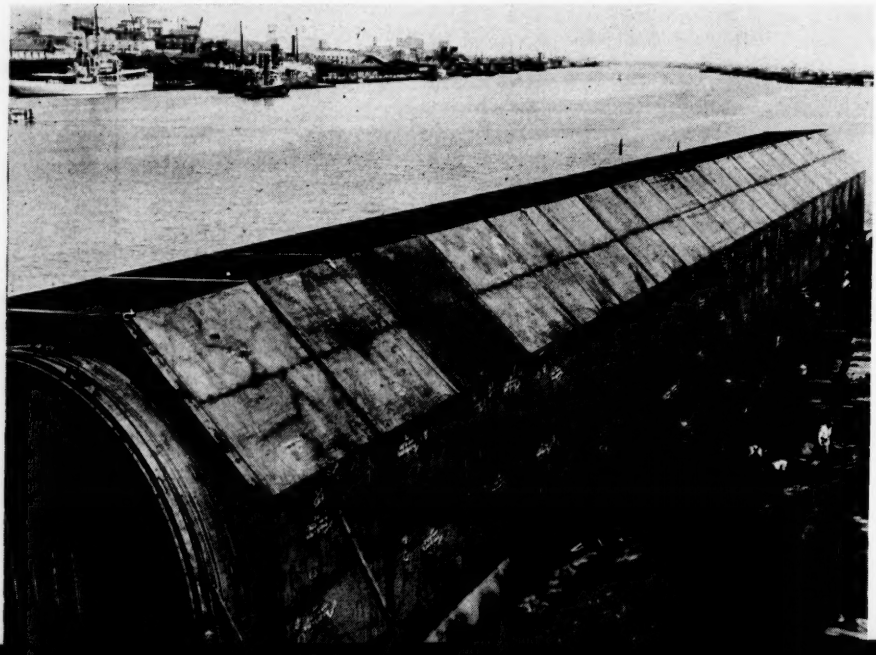
The sudden increase of electric generation and distribution fostered by governmental agencies was attributed to more intensive activity in the rural electrification field and to steps taken on projects such as those of the Tennessee Valley Authority, the Santee-Cooper development in South Carolina and the Lower Colorado River undertaking in Texas.

Government construction of dams, power houses and electric lines was being carried out as private utilities made plans for additional generating facilities or already had projects for this purpose under way. A certificate of convenience and necessity was granted by the Alabama Public Service Commission to allow the Alabama Power Co. to proceed with construction of its $4,000,000 steam plant at Chickasaw, a Mobile suburb. Florida Power & Light Co., Miami, is to erect a $3,000,000 addition with a 25,000-kilowatt capacity. Central Power & Light Company's plans an extension.

Potomac Electric Power Co., Washington, D. C., which has been studying a proposition to further increase its capacity, let contract for a network transfer station. Plants being erected, or nearing completion are those of the Consolidated Gas, Electric Light and Power Co., Baltimore, where proposed construction may include replacement of the Terminal heating plant; of the Duke Power Co., at Cliffside, N. C., and of the Virginia Electric and Power Co., which is building at Norfolk. Arkansas Power and Light Co. plans a hydroelectric development on the Ouachita River.

Railroads are moving to add or replace equipment in anticipation of greater traffic demands occasioned by unsettled European conditions. Among these are the Seaboard Air Line, which has purchased 8,512 tons of heavy rail from United States Steel's Birmingham subsidiary, the Tennessee Coal, Iron & Rail-

*First section of the Mobile river tunnel tube after it was launched August 26, 1939. Built by the Alabama Dry Dock and Shipbuilding Co., Mobile, Ala., it will be noted that the top of the tube is left open for tremie concrete which is placed between inner and outer shell to overcome buoyancy.*



*Above—Construction is shown advancing on the first unit of the $10,000,000 plant of the Celanese Corporation of America, between Pearisburg and Narrows, in Giles County, Virginia. From left to right, the buildings are: Temporary office (one-story); machine and repair shop (two-story); tall structure in background, steam plant; spinning building, middle foreground; three-story steel frame, the permanent office building. The textile building to the extreme right is nearest completion.*

road Co., and from Bethlehem Steel Corp., and has ordered two streamlined, stainless steel trains. Chesapeake & Ohio Railway's orders totaled 2,500 cars, with 32,000 tons of rail going to Carnegie-Illinois, Inland and Bethlehem Steel companies. Thirty thousand tons of rail were covered under the Louisville & Nashville contract with T. C. I., which also will furnish 8,500 tons to Atlantic Coast Line. Norfolk Southern will purchase five freight locomotives. Norfolk and Western Railway will expend $9,200,000 on its new equipment program.

Two of the largest industrial projects proposed, or started in the South are the National Biscuit plant at Atlanta, Ga., and the $3,000,000 pulp and paper plant to be built at Pensacola, Fla. The first unit of the Atlanta bakery will cost $3,200,000 with the construction contract let to George A. Fuller Co., of Washington, D. C. Approximately 400,000 square feet of floor space will be provided. The 3,400 tons of structural steel is being fabricated by Virginia Bridge Co. Completion is expected by July, 1940.

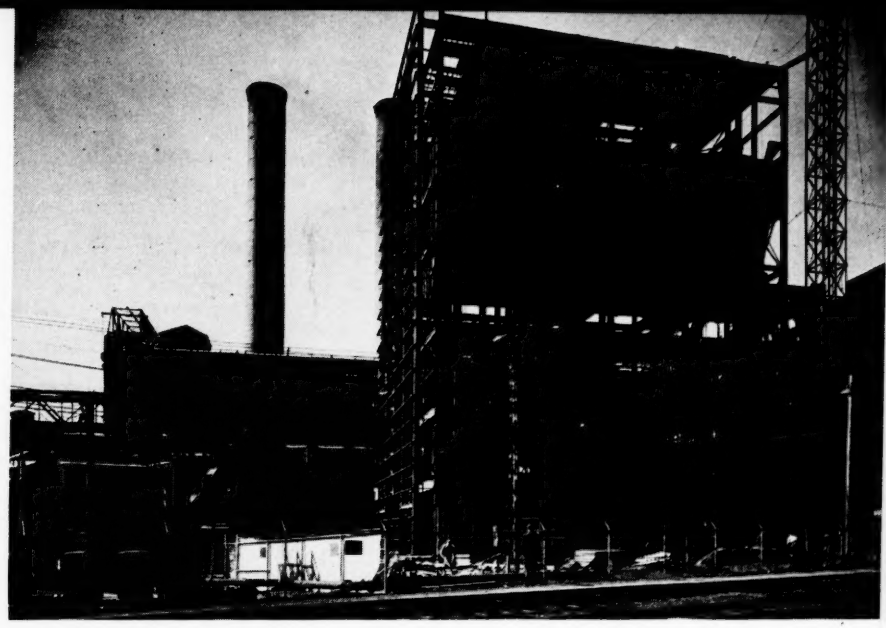
The Pensacola paper plant will be erected by the Florida Pulp and Paper Co., a new concern headed by J. H. Allen and A. D. and J. C. Pace. Actual construction on the first unit, which will be a pulp and bleaching plant, is scheduled to be under way by February, 1940. Another large paper plant construction project is going forward at Houston, Tex., where Champion Paper and Fiber Co. is making a $3,000,000 addition for producing high grade coated paper.

Southern Cement Co., Birmingham, is rebuilding a portion of its plant recently destroyed by fire. Engineering and construction are under supervision of Burrell Engineering & Construction Co., Chicago. Rust Engineering Co. received the contract for the three buildings of the Southern Wheel Co., another Birmingham concern. Estimated cost of this latter work is $100,000. Horton Motor Lines, Charlotte, N. C., is expending $380,000 for an enlarged equipment program, warehouse and office expansion.

The contract to erect a seven-story brick and steel building for P. H. Hanes Knitting Co., of Winston-Salem, N. C., was awarded to C. M. Guest & Sons, Inc., Greensboro. Poinsett Lumber and Manufacturing Co., of Pickens, S. C., plans spending $800,000 for a lumber mill, veneer and sewing machine cabinet plant. Louisiana-Nevada Transit Co., Ada, Okla., received permission from the Arkansas Utilities Commission to distribute natural gas in southwest Arkansas, a $440,000 expenditure for constructing the 75-mile pipeline being proposed in this connection.

Rustless Iron & Steel Corp., Baltimore, proceeded on a $1,300,000 expansion program. Republic Steel Corp., Birmingham, is increasing its capacity at a cost of $500,000. Fairfield-Western Maryland Dairy, Baltimore, is making ready to add facilities at a cost of $1,600,000. Mon-

(*Continued on page* 34)

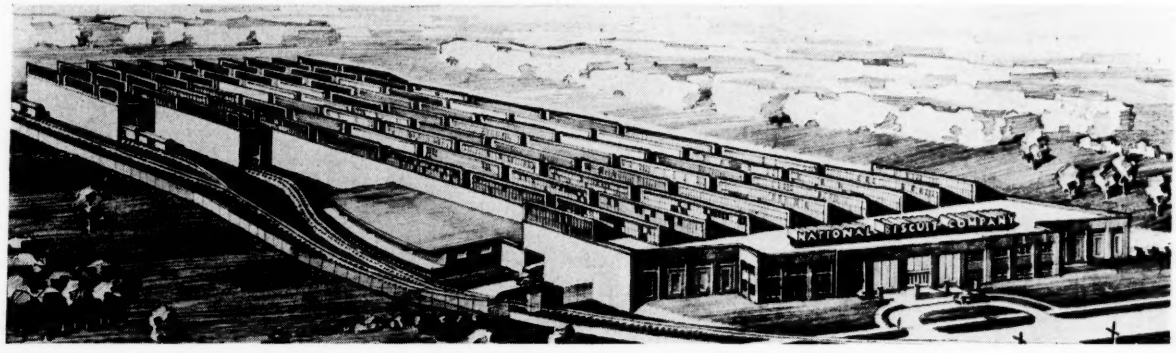


*Work on the* $3,000,000 *expansion of the Westport power station of the Consolidated Gas, Electric Light and Power Co., Baltimore, is progressing according to schedule, with operation slated by the middle of* 1940. *To add* 33,500 *horsepower to the company's generating capacity, will raise the total capacity to* 244,600 *at this plant.*

## Statistics of South's Construction

| | Contracts Awarded September, 1939 | Contracts to be Awarded September, 1939 | Contracts Awarded First Nine Months 1939 |
|---|---|---|---|
| **PRIVATE CONSTRUCTION** | | | |
| **BUILDING** | | | |
| Assembly (churches, theatres, auditoriums, fraternal) | $1,451,000 | $3,903,000 | $12,715,000 |
| Commercial (stores, restaurants, filling stations, garages, etc.) | 1,763,000 | 1,717,000 | 23,579,000 |
| Residential (apartments, hotels, dwellings) | 4,796,000 | 3,879,000 | 72,754,000 |
| Office | 597,000 | 817,000 | 13,668,000 |
| | $8,607,000 | $10,316,000 | $122,716,000 |
| **INDUSTRIAL** | $18,367,000 | $21,028,000 | $89,420,000 |
| **PUBLIC CONSTRUCTION** | | | |
| **BUILDING** | | | |
| City, County, State, Federal | $5,832,000 | $10,766,000 | $97,984,000 |
| Housing | 3,515,000 | 3,955,000 | 56,259,000 |
| Schools | 3,073,000 | 3,745,000 | 56,027,000 |
| | $12,420,000 | $18,466,000 | $210,270,000 |
| **ENGINEERING** | | | |
| Dams, Drainage, Earthwork, Airports | $4,368,000 | $7,616,000 | $50,587,000 |
| Federal, County, Municipal Electric | 28,253,000 | 13,175,000 | 71,885,000 |
| Sewers and Waterworks | 1,807,000 | 2,395,000 | 23,590,000 |
| | $34,428,000 | $23,186,000 | $146,062,000 |
| **ROADS, STREETS AND BRIDGES** | $8,556,000 | $24,122,000 | $132,825,000 |
| **TOTAL** | $82,378,000 | $97,118,000 | $701,293,000 |

*The* $3,200,000 *first unit of a new National Biscuit Company plant for Atlanta, Ga. A new type designed by Louis Wirsching, company architect, the plant will be one story high, have practically no windows in the exterior walls and be lighted by day entirely through overhead sawtooth skylights.*



## South's Contracts in Upswing

(*Continued from page* 33)

santo Chemical Co. directors approved construction of an additional unit to produce diphenyl at Anniston, Ala., with an extensive research program beginning in its phosphate division laboratories.

American Compressed Steel, Inc., of Cincinnati, Ohio, acquired a riverfront site at Kansas City, Mo., where a $125,000 investment is proposed. West Point Manufacturing Co., textile manufacturer, received bids for building improvements at Fairfax, Ala. A $225,000 program of the Mobile and Ohio Railroad at Mobile, Ala., contemplates reconstruction of a warehouse for handling bananas from ships to cars. A building permit issued to the Washington, D. C., *Evening Star* was for a $100,000 parking garage and store.

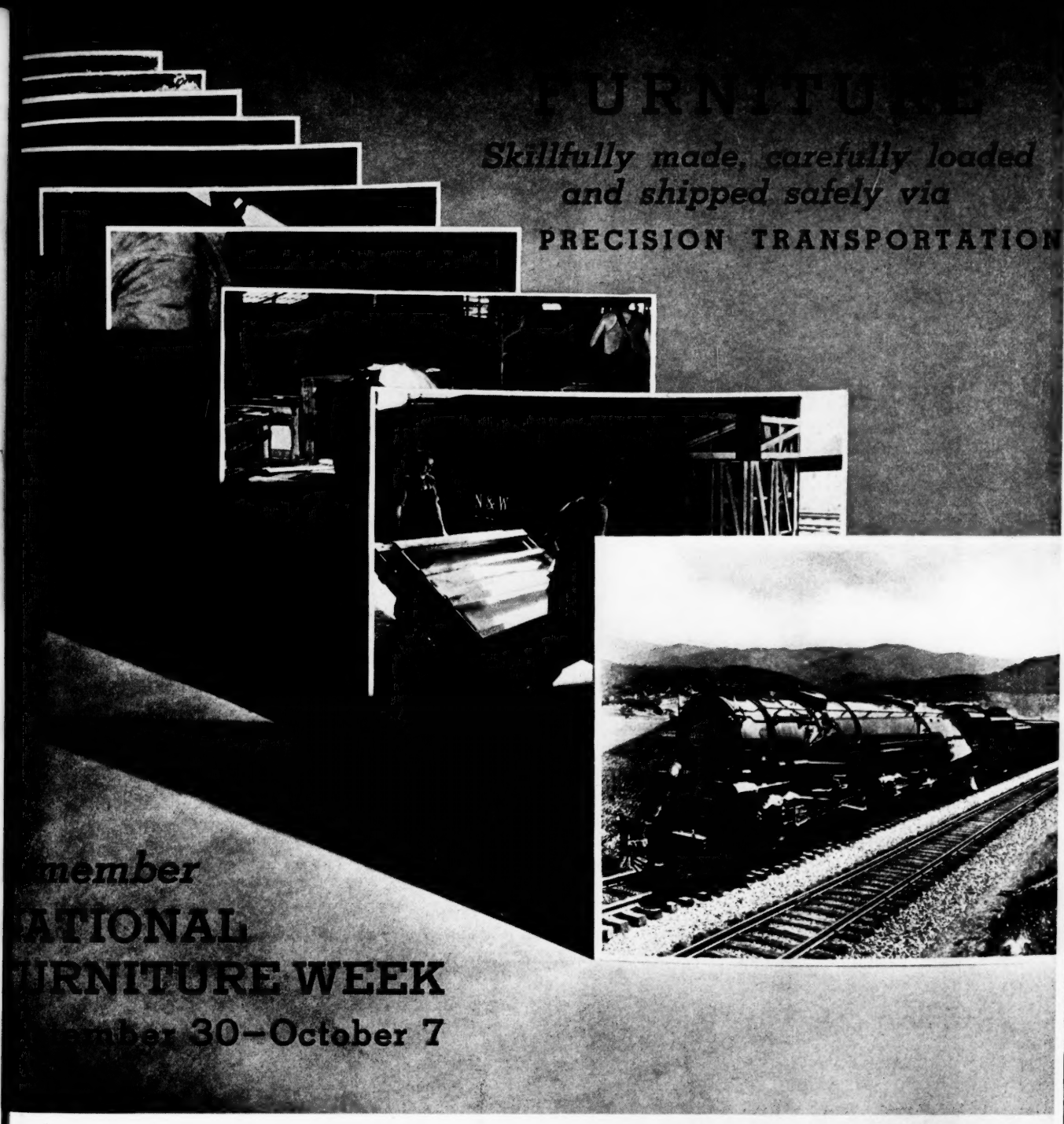
Private building during September dropped to $8,607,000, as compared with the $12,687,000 of August of this year and with the $10,292,000 of September of 1938. Residential work, which has been strong during the entire current year, decreased to $4,796,000. Public housing projects, however, suffered a much worse decline, the September total being $3,515,000 against a $14,083,000 figure for the preceding month. Assembly buildings, including theatres and churches, were higher from the valuation viewpoint. Bank and office projects also were up. Commercial building showed a decrease, the total for September being $1,763,000; for August, $3,633,000.

Public building, other than dams, electric projects and sewers and water work, dropped drastically. The September figure was $12,420,000; that for August, $28,327,000. The $34,428,000 aggregate for heavy engineering projects was swelled to that proportion by acceleration in public electric work, which totaled $28,253,000. Drainage, earth and airport work contributed $4,368,000 of this figure; sewers and water works, $1,807,000, this latter amount being slightly ahead of the similar total for August

Highway and bridge work is now approximately thirty-four per cent under the August figure.

## Industrial Plants and Expansions in the South During September, 1939

| Location | Work | Expenditure | Owner |
|---|---|---|---|
| Alabama | Building Program | $250,000 | West Point Manufacturing Co. |
| Anniston, Ala. | Additional Unit | | Monsanto Chemical Co. |
| Fairfax, Ala. | Alterations and Additions | | West Point Manufacturing Co. |
| Lanett, Ala. | Building Addition | | Lanett Bleachery & Dye Works |
| Mobile, Ala. | Steel Shed | | Mobile & Ohio Railroad Co. |
| Arkansas | Pipeline | $440,000 | Louisiana-Nevada Transit Co. |
| Arkadelphia, Ark. | Mill | | Caple Handle Co. |
| Washington, D. C. | Plant and Equipment | $70,000 | Chesapeake & Potomac Telephone Co. |
| Washington, D. C. | Garage and Store | $100,000 | Evening Star Newspaper Co. |
| Jacksonville, Fla. | Paint and Varnish Factory | | General Tung Oil Corp. |
| Mobile, Ala. | Expansion | $155,000 | Alabama Drydock & Shipbuilding Co. |
| Pensacola, Fla. | Paper Plant | $3,000,000 | Florida Pulp & Paper Co. |
| Pensacola, Fla. | Paint Factory | | United States Industrial Chemical Co. |
| Plant City, Fla. | Bottling Plant | | Coca Cola Bottling Co. |
| St. Cloud, Fla. | Power Plant Enlargement, Garage | | St. Cloud Public Utilities |
| Valparaiso, Fla. | Plant Rebuilding | | Valparaiso Hosiery Mill |
| Winter Haven, Fla. | Citrus Packing Plant | | Stanford Fruit Growers, Inc. |
| Atlanta, Ga. | Plant | | Georgia Milk Confederation |
| Columbus, Ga. | Oil and Gasoline Storage Plant | $35,000 | Citizens Oil Co. |
| Lagrange, Ga. | Bleachery Addition | | Callaway Mills |
| Louisville, Ky. | Factory Addition | $23,500 | Puritan Cordage Mills, Inc. |
| Russell, Ky. | Yard Office, Underpass | $164,000 | Chesapeake & Ohio Railway |
| Amite, La. | Cooling Plant, Receiving Station | | St. Charles Dairy, Inc. |
| LaFayette, La. | Packing Plant | | Evangeline Packing Co. |
| Baltimore, Md. | Building | | American Agricultural Chemical Co. |
| Baltimore, Md. | Equipment Addition | | Chesapeake Paper Board Co. |
| Baltimore, Md. | Factory | | I. Sekine Co., Inc. |
| Baltimore, Md. | Building Alterations | | Reynolds Paint Co. |
| Jackson, Miss. | Terminal | $40,000 | Tri-State Transit Co. |
| Vicksburg, Miss. | Gas Line | | United Gas Pipe Line Co. |
| Yazoo City, Miss. | Refinery | | Yazoo Refinery Co. |
| Kansas City, Mo. | Plant | $125,000 | American Compressed Steel, Inc. |
| Kansas City, Mo. | Ice Cream Unit | | Borden Co. |
| North Kansas City, Mo. | Reassemble Foundry | $200,000 | Alabama Pipe Co. |
| St. Louis, Mo. | Plant | | Emerson Electric Manufacturing Co. |
| St. Louis, Mo. | Factory | $35,000 | Midwest Piping & Supply Co. |
| St. Louis, Mo. | Stock House | | Griesedieck Brothers Brewing Co. |
| St. Louis, Mo. | Plant | | Nonpareil Manufacturing Co. |
| St. Louis, Mo. | Storage Building | $80,000 | Wagner Electric Corp. |
| St. Louis, Mo. | Office | $30,000 | Wolff Printing Co. |
| Burlington, N. C. | Warehouse | $35,000 | Burlington Mills Co. |
| Charlotte, N. C. | Enlarge Warehouse, Office | $380,000 | Horton Motor Lines |
| Charlotte, N. C. | Livestock Packing Plant | $100,000 | C. O. Kuester |
| Greensboro, N. C. | Cigarette Plant | | R. L. Swain Tobacco Co. |
| Shelby, N. C. | Milk Receiving Plant | $30,000 | Carnation Milk Co. |
| Shelby, N. C. | Warehouse | $30,000 | Cleveland Cloth Mill |
| Winston-Salem, N. C. | Storage and Shipping Building | $200,000 | P. H. Hanes Knitting Co. |
| South Carolina | Improvements | $1,000,000 | Commonwealth & Southern Corp. |
| Pickens, S. C. | Lumber Mill, Veneer and Cabinet Plant | $800,000 | Poinsett Lumber & Manufacturing Co. |
| Spartanburg, S. C. | Plant | $35,000 | Chero Cola Nehi Co. |
| Texas | Vegetable, Fruit Loading Facilities | $122,050 | Missouri Pacific Railroad Co. |
| Texas | Gasoline Plant | | Sinclair-Prairie Oil Co. |
| Athens, Tex. | Cheese Plant | | Kraft-Phenix Cheese Co. |
| Bastrop, Tex. | Cedar Oil Plant | | J. H. Richardson |
| Brownsville, Tex. | Packing Plant Addition | | Southern Pacific Railroad Co |
| Brownsville, Tex. | Molasses Storage Tank | | Southwestern Sugar & Molasses Co. |
| Center, Tex. | Cheese Plant | | John Moosberg |
| Corpus Christi, Tex. | Boat Building Plant, Marine Railway | | G. E. Valentine Boat Works |
| Galveston, Tex. | Marine Ways, Machine Shop | | Gulf Marine Ways |
| Houston, Tex. | Freight Terminal | | H. and N. T. Motor Freight Lines, Inc. |
| Houston, Tex. | Box Plant | $30,000 | Continental Box Co. |
| Houston, Tex. | Warehouse | $75,000 | Mid-Continent Supply Co. |
| Houston, Tex. | Bus Terminal | | Bowen Motor Coaches |
| Marshall, Tex. | Subways and Train Shed | | Texas and Pacific Railway Co. |
| Port Arthur, Tex. | Aviation Gasoline Unit | $500,000 | Gulf Refining Co. |
| San Antonio, Tex. | Bottling Addition | $25,000 | San Antonio Brewing Association |
| Texas City, Tex. | Addition to Cracking Unit | $75,000 | Republic Refining Oil Co. |
| Texas City, Tex. | Dock, Traveling Crane | $400,000 | Texas City Terminal Railway Co. |
| Bedford, Va. | Mill Addition | $60,000 | Hampton Looms Woolen Mills |
| Norfolk, Va. | Freight Locomotives | $675,000 | Norfolk Southern Railroad |
| Radford, Va. | Plant Addition | $40,000 | Century Ribbon Mills |
| Huntington, W. Va. | Move Plant | | Huntington Boiler Works |
| Wilmington, N. C. | Steel Rail | | Atlantic Coast Line Railway |
| Louisville, Ky. | Steel Rail | | Louisville & Nashville R. R. |
| New York, N. Y. | Steel Rails | | Seaboard Airline Railway |
| Cleveland, Ohio | Freight Cars | $5,680,000 | Chesapeake & Ohio Railway |
| Roanoke, Va. | Hopper Coal Cars | $1,000,000 | Norfolk & Western Railway |

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URNITURE WEEK
ember 30–October 7

Among top-ranking industries of the South, the manufacture of furniture holds a front line position. From the production centers in Virginia and Carolina along the Norfolk and Western Railway, thousands of carloads of furniture are shipped annually via Precision Transportation—the Railway's unexcelled freight service. To safely transport this huge volume of furniture, the Norfolk and Western, in cooperation with the manufacturers, has developed by research and experiment a most practical and efficient method of loading and stowing furniture to prevent damage in transit.

With an abundant supply of modern freight cars to meet every demand, powerful locomotives, automatic safety signals, a smooth roadbed, and experienced personnel, the Norfolk and Western Railway is thoroughly qualified for its role as one of the leading railroads of the world in the transportation of furniture originating on its line. The same careful handling and prompt dispatch accorded furniture are provided for every class of freight shipped over the Norfolk and Western. When you have freight to be moved between the Midwest and the Virginias and Carolinas and between the North and the South, specify Precision Transportation for most satisfactory service.

NORFOLK AND WESTERN RAILWAY
PRECISION TRANSPORTATION

# Sea Food Packing At Beaufort S.C.

*Picturesque and interesting are the Gullah negroes of Beaufort, S. C. Their tongues rattle away as fast as their hands while picking crabs*

"UH chaw, en' uh chaw, uh chaw, en' ush chaw. De t'ing sweet'n' me fuh true, but 'e ketch me jaw' en' 'e hol'um same lukkah pinegum plastuh!"

To enter a factory door and hear dozens of individuals all talking rapidly like this might well give one the impression that one had left the United States far behind and entered the door of some far distant place where bedlam had broken loose. Actually we are in a factory located in one of the oldest parts of America and the employees are American negroes. This particular plant is one of several canning establishments which have sprung up in recent years in the heart of the South Carolina "Low Country" and the employees are the picturesque Gullah negroes.

In 1935, Beaufort had but two canning plants where fish alone was processed. Today there are five tomato canneries which last season canned 75,000 cases of 24 cans, 10,000 cases of 48 cans of tomato juice, and 5,000 cans of okra and tomatoes. In addition, there is one oyster packing plant which, in the vegetable season, also cans okra and tomatoes, and twelve raw oyster shucking plants besides the several shrimp packing plants.

The Charleston News and Courier states that 'the county has two crab factories. One of them, at Port Royal, is the only plant in the country which has patented a process by which the original color and taste of the crab meat is retained. In this process an aluminum sulphate dip is used to prevent formation of blue discoloration due to the interaction of copper and sulphur which the crab meat naturally contains. A more recent patent eliminates the blood of the crab as quickly as possible after the first steaming.

"The other crab factory at Port Royal and previously situated on Lady's Island, packs the crab meat fresh on ice.

"Catching the crabs for these plants gives employment to many negro men who go out in row boats—and the picking is done by Gullah negro women who sit at long tables, a picturesque group with their heads tied up and their tongues rattling away as fast as their hands.

"Stainless steel and aluminum are used entirely in the picking of crabs at the Port Royal plant, for the meat must not come in contact with ordinary iron or copper. After being picked the crab meat is dipped in stainless steel pots containing a dilute solution of aluminum sulphate and salt. It is then packed in 'C' enamel cans lined with patapar. The cans are then vacuum sealed and placed in retorts in which they are exposed to a temperature of 250 F. for twenty-five minutes. They are next cooled quickly in cold water, dried and labeled.

"All of these packing plants" which provide employment for two to three thousand people "are closely and regularly inspected by public health officials and are required to meet rigid sanitary requirements."

*Gullah negroes at work in a crab meat canning plant at Beaufort, S. C.*

# Check your business from every angle by *Long Distance*

**Why are sales sagging in the Southeast? Is the factory really rolling on that new number? How's the market survey in Chicago coming? Has Houston signed that jobber?**

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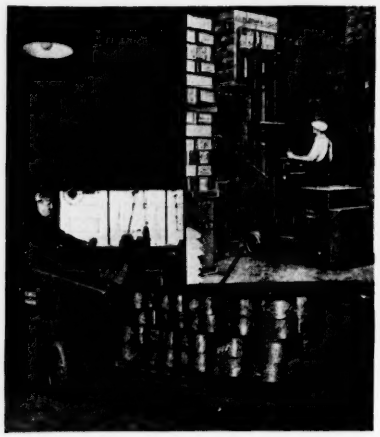
**Long Distance is tailor-made for modern executives. And it pays its way many times over at today's low rates. Use it yourself and *see!***

# New Ways of Doing Things

## Streamlined Industrial Trucks

Of three power industrial trucks recently introduced by The Elwell-Parker Electric Company of Cleveland, Ohio, two of them—type F-15 center control fork truck and type GEP-6 lift platform truck—are illustrated herewith. The third truck, a new streamlined crane, has a rated capacity of 3000 pounds at a 7-foot outreach, and full magnetic contactor control. The GEP-6, for handling material on skids, has speeds up to 10 miles per hour and a rated capacity of 6000

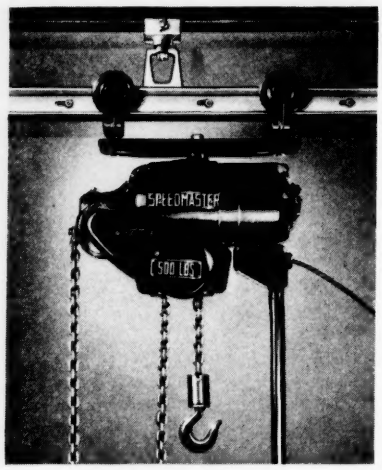


*Elwell-Parker Industrial Trucks*

pounds. It is powered by a heavy duty industrial type four-cylinder motor developing 33 B.H.P. at a normal speed of 1250 r.p.m., and incorporates many safety features. The F-15 has a rated capacity of 4000 pounds and may be powered by a battery or gas-electric unit. It is constructed either as a telescoping or non-telescoping truck for inside car work or high tiering of pallet loads in the warehouse, and may be fitted with a fork of two prongs to be thrust beneath metal or wood load carrying pallets or with a single or double ram for insertion in coils or circular ring type packages.

## New Line of Speedmaster Hoists

Including hoists of 250, 500, 1000, 2000 and 3000 pound capacities, a new line of Speedmaster Hoists for all industrial applications has been introduced by the Industrial Equipment Division of The Master Electric Company of Dayton, Ohio. In these new hoists, which are distinguished for speed operation, rugged construction has been obtained from the use of the well known Master Gear Head Motor as the basis of design. They are equipped with unusually powerful Master Motors sufficient to guarantee continuous performance under exacting conditions. Outstanding features include an electric limit switch which limits operation in *each* direction and prevents overrun; pistol grip interlocked electric control; the Master Unibrake that stops quickly and holds. All models are equipped with anti-friction bearings and are available with rail, hook or lug mounting. They are compact, requiring small headroom, and may be used inside or outside, and any desired length of lift may be provided as well as a wide selection of capacities and speeds.




*Hoist for Speedy Operation*

## New Type Roofing Material

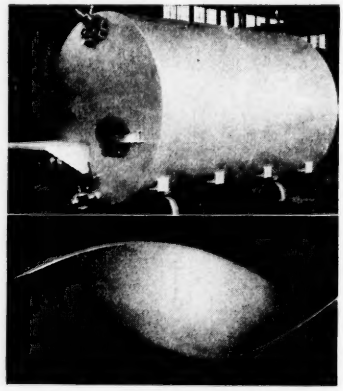
The Ferro Enamel Corporation of Cleveland, Ohio, manufacturers of Porcelain Enamel, have completed a new factory for the production of Ferro Colors for use in porcelain enamel ware, clay tile, pottery, china, and glass. The plant is unique, in that it makes the first use in the factory-building field of porcelain enamel as an exterior as well as interior finish. Roof, stack, gables, trim, gutters, window sash and doors are finished in Ferro poreclain enamel, and inside the building, partitions separating the offices, laboratory and plant are also in porcelain enamel. According to President Robert A. Weaver of the Ferro Enamel Corporation, the purpose of the installation was to demonstrate the possibilities of porcelain enamel in the factory-building field, and to take advantage in the company's own plant of savings to be made through the use of porcelain enamel. The roof of the new plant is believed to be the first self-supporting porcelain enameled steel roof ever erected. The Kor-Lok System was used, developed by the Kor-Lok Company of Cleveland. Kor-Lok roofing sheets were dipped in sheet iron ground coat enamel, dried and oversprayed on the "weather" side with a special weather-resisting enamel. They were then fired. The Kor-Lok Company is now making plans for the production of both galvanized and porcelain enameled Kor-Lok Sheets. Steel partitions in the plant were furnished by E. F. Hauserman Company of Cleveland, while the gutter, which is a development of the Wheeling Corrugating Company of Wheeling, W. Va., was furnished by that company. L. F. Sieferd is the architect of the Ferro-Enamel Corporation.

## Paint for Rusted Fence

The Skybrite Company of Cleveland, Ohio, announces a new ready-mixed aluminum paint, "FENCE-BOND," specially formulated for painting rusted chain link fence without removing the rust. Base oils are of the penetrating type which creep into all joints and contact points, sealing the rust against further corrosive action. The new paint is said to dry from the outside, retaining a firm elasticity which is able to withstand the movement of the joints without chipping. The pigment is Alcoa Albron Paste mixed at the factory under controlled conditions. The paint may be applied with brushes or a spray gun.

## Stainless Clad Steel Sheets

Combining the corrosion resistance of stainless steel with many desirable properties of mild steel, stainless clad steel sheets and plates, known as Silver-Ply, are now being marketed by the Jessop Steel Company of Washington, Pa. Silver-Ply is manufactured by a patented process which assures a strong, uniform, oxide-free weld between the stainless cladding and the mild steel backing. The strength of the bond is shown in the lower part of the illustration, which presents a strip of Silver-Ply twisted into a spiral shape without any separation of the composite metals. Other features of the process are close control of the relative proportions of the component parts, and the prevention of carbon particles from migrating to the stainless cladding, which might otherwise seriously reduce corrosion resistance. Silver-Ply is suitable for making cooking vessels, storage tanks and other equipment used in the processing and handling of varnishes, chemicals, soaps, oils, etc., and for marine equipment, waterworks, sewage disposal plants, etc. A typical vessel fabricated from Silver-Ply is shown in the upper part of the illustration.



*Silver-Ply Stainless Clad Steel*

# HOW TO SAVE TIME ON PLANT MAINTENANCE WORK

Factory maintenance work frequently interferes with the normal activities of the plant.

New construction, improvements, repairs or maintenance work will sometimes disrupt or interfere with the normal, routine activities of industrial plants.

Inconvenient and often costly delays that may be due entirely or in part to construction work of this character, are greatly reduced—frequently eliminated—by quick-use concrete that is made with Penn-Dixie High Early Strength Cement.

Just as the term "High Early Strength" implies, quick-use concrete made with Penn-Dixie High Early Strength Cement attains service strength much earlier than does concrete made with regular cement.

This means that the new structure, improvement, repair or job of maintenance work built with quick-use concrete is ready for the intended purpose days sooner. And time saved often results in a saving of money as well. Compare strengths of concrete shown in the table at right.

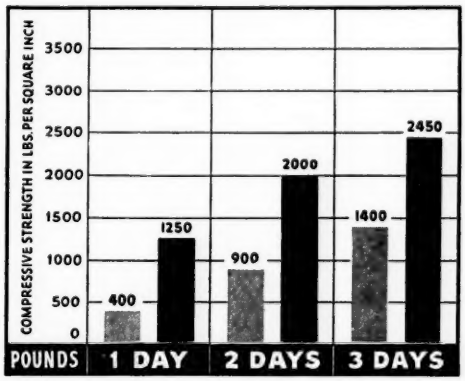



*Chart above shows early strength of concrete made with regular cement (gray columns) compared with strength of concrete made with Penn-Dixie High Early Strength Cement (black columns). Concretes are identical except for type of cement used. Both concretes were made with seven gallons of water per bag of cement and were cured at 70 degrees Fahrenheit.*

**When there's concrete work to be done ... get in touch with your nearby building supply dealer. Ask him for Penn-Dixie High Early Strength Cement for quick-use concrete. And in the meantime, write on your letterhead for booklet T-6.**

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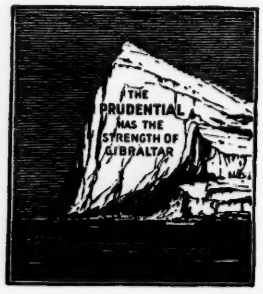
Employees are quick to take the opportunity when they are offered contributory

GROUP INSURANCE

*Details to Employers on request*

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# » » » *Finance* « « «
## AND KINDRED SUBJECTS

### Labor Union Responsibility

What will be the situation in regard to labor as business becomes more active is giving concern in some quarters. An effort of the C. I. O. to organize workers in independent steel plants is announced for October, and labor leaders are said to figure on the backing of the Army and Navy Departments of Government, notwithstanding the fact that plants are working on Government orders. The Labor Relations Act, adopted, its advocates said, to bring about peaceful employer-employee relations, having failed of its purpose, is due for revision or abolishment. It is doubtful if any law can be framed that will be successful in this direction which does not take into account the prerequisite of labor organizations accepting as corporations their full legal responsibility.

### The Answer Is No

Robert M. Hanes, recently elected President of the American Bankers' Association at the Seattle convention referred to the growing public debt of the United States as "a threat to our democracy" and gave it as his opinion that if we are drawn into the European war, the present figure of forty-five billion may go up to eighty billion. If this should happen, "can we take the punishment entailed in paying a debt of such proportions and remain a true democracy?"

### Business Calls For Bank Credit

The increasing demand for bank credit in the shape of commercial loans has been due to a variety of reasons. Business already experiencing an upturn when war was declared found inventories many times at a low point and also saw the need of plant improvement to take care of anticipated foreign orders, as well as growing domestic demand. Commodity prices rising rapidly brought the need of prompt buying into sharp outline and while some of it may have been speculative, such as the situation when housekeepers became panicky about their sugar, business generally recognized that prices under war conditions would go higher and were likely to stay higher for some time to come.

### Defense

The country is of one mind, apparently, on the subject of adequate national defense for the United States. Defense against the outside and there is a growing consciousness of the need of defense against the borers from within. The equipment necessary for the first objective will cost a lot more than the second, but both are highly desirable and imperative. A fly in the ointment is the condition of the national budget. The course would be clearer if we hadn't followed a profligate policy. Larger tax receipts will help out, but we are likely to see the debt vastly greater than it is at present. Our tolerance of spending has been on a par with our tolerance of alien subversive influences. We are likely to pay dearly for both.

(*Continued on page* 42)

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## BALTIMORE, MD.

## Constructors and Engineers

### Distributors of Sand - Gravel - Stone and Commercial Slag

A COMPLETE ORGANIZATION

Our complete organization with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of earth, masonry and concrete dams, drydocks, dredging of all kinds, river and harbor improvements, deepening channels, hydraulic filling and rock work, tunnels, railroad construction, sewers and waterways.

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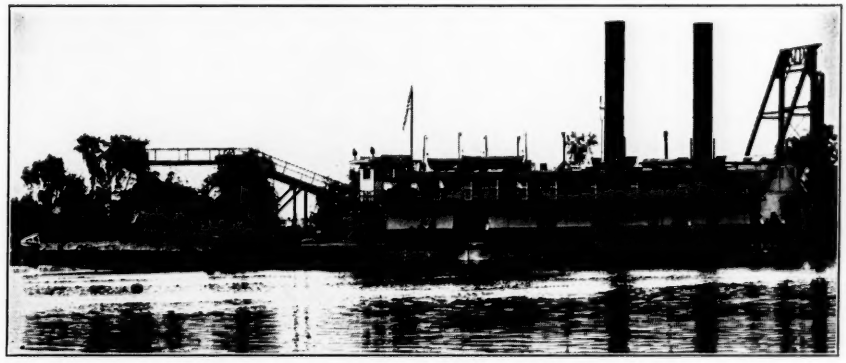
FILLING, LAND RECLAMATION, CANALS, PORT WORKS

RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



We are especially equipped to execute all kinds of dredging, reclamation and port works in Southern waters.
Correspondence invited from corporate and private interests everywhere.

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STAMPED, ROLLED AND SPUN
Yet Galvanizing Holds Tight!
This poultry water fountain pan is made of ARMCO ZINCGRIP. It is stamped to a depth of 1¼ inches, then the edges are rolled and the flange (illustrated in the isometric drawing) is spun. There is no flaking or peeling of the zinc coating during any operation.

• Here's a rough-and-tumble three-way fabricating job that ARMCO ZINCGRIP takes in stride. Ordinary galvanized sheets would flake and peel in the first stamping operation. Yet ZINCGRIP goes from stamping to rolling and spinning without a bit of coating loss.

To be sure it's unusual; and given a chance ARMCO ZINCGRIP will be a revelation to *you* too. You'll find the zinc clings tightly to the base metal even in severe forming and moderate cold drawing operations. No longer will peeling or flaking along seams and edges detract from appearance and shorten service life.

Give new life to your products with ARMCO ZINCGRIP. It's worth a try. And you'll have some really convincing sales points that will lead to more satisfied customers, *more profits for you.* ZINCGRIP is available in either sheets or coils, with a choice of these three base-metals: open-hearth steel, copper-bearing steel or extra-durable ARMCO Ingot Iron. Write for our free illustrated folder. The American Rolling Mill Co., Middletown, Ohio.

ARMCO Armco

ZINCGRIP SHEETS

GIVE FULL PROTECTION


# "Finance and Kindred Subjects"

(*Continued from page* 40)

## Government Securities

The course of United States Government securities from a market standpoint is being watched closely by banking interests which are holding a large proportion of Government obligations. When war was declared in Europe, the Federal Reserve System was reported to have bought more Government obligations in a week early in September than in any other week in its history. Later, it was stated that the Government had withdrawn temporarily its active support of the market to test the effect of letting "governments" stand alone. Prices have fluctuated as war seemed nearer or further away. One result of open market operations by the System was a jump in excess reserves which recently reached a peak of $4,970,000,000. Whatever may be the need created by war or increased credit demands by improving business, our financial resources are ample to take care of any situation likely to arise.

## $4,000,000 Plant

Thomas W. Martin, President of the Alabama Power Company, announced last month the proposed construction of a $4,000,000 steam power plant at Mobile as part of a program of expansion. This will be the first of three units.

Mr. Martin stated, "It is but one step in the large program of construction which we hope to get underway in the near future. It was made possible by action of the legislature in passing the Booth bill and the recent action of Congress in curtailing competitive activities of TVA and unfair loan grants to municipalities.

## Railroad Buying

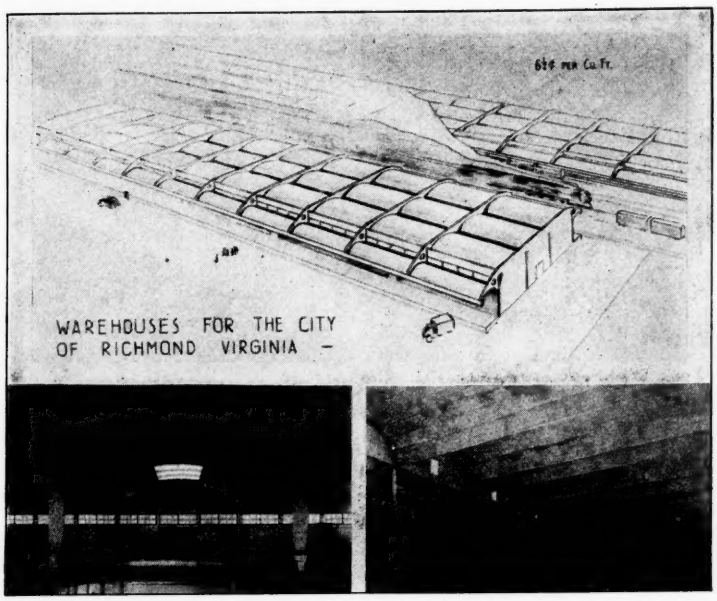
An important contribution to the upturn in business is the entry of the railroads into the market for equipment and supplies. Purchases in recent weeks due to the determination of the carriers to prepare for freight increases have been steadily mounting. Forty-six thousand new freight cars was an item recently announced that gave assurance to shippers. Rail orders at Birmingham and other steel centers are in larger amounts and general equipment orders are being rushed. The railroads of America in normal times buy probably 25% of the dollar value of goods sold and their contribution to business activity has always been of the utmost importance. Their purchases reach not only into all the states, but into nearly all the counties and towns.

## American Resourcefulness

In an article by Jesse V. Sullivan on another page, attention is called to a statement by Dr. James K. Hunt at a recent Coal Conference at Morgantown, West Virginia. Dr. Hunt referred to the situation that obtained in America when war broke out in Europe 25 years ago. He said, "Then, many of our industrial activities were dependent upon imports * * * Even the health of our people was endangered because the importation of many important medical supplies had been cut off * * * Today in sharp contrast, practically every important American industrial and medicinal need is being filled, and, I am confident, will continue to be filled, by American factories on American soil, whatever emergency may arise from the present European conflict. This is due in no small degree to the accomplishments of scientific research."

# FACTORIES—STORAGE HALLS

## Z-D System of Monolithic Concrete Construction

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and plans for new development are being made.

***Our purpose is to help business***

*Correspondence invited*

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**CRUSHED STONE**

**Only highest grades of crushed**
**LIMESTONE AND GRANITE**
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CAPACITY—8000 tons daily

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Difficult and unusual foundation and engineering problems a specialty

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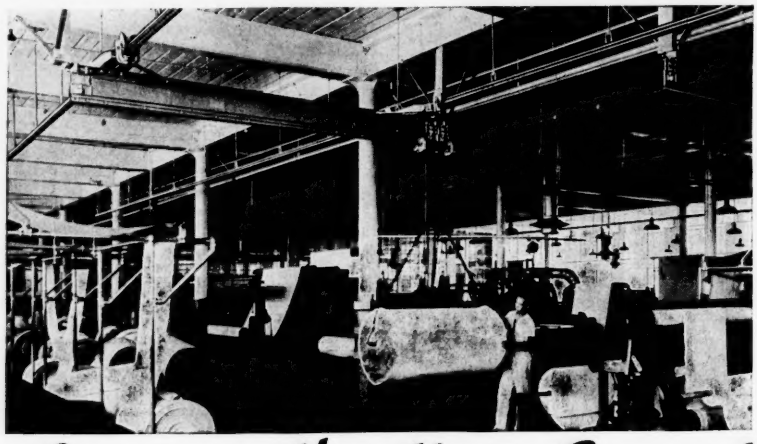
# INDUSTRIAL NEWS

## B. F. Goodrich Board Elects Collyer

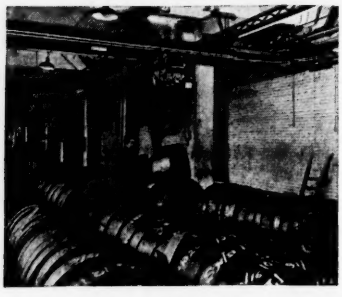
Accepting the resignation of S. B. Robertson as president, the board of directors of The B. F. Goodrich Company, David M. Goodrich, chairman, announces the election of John Lyon Collyer as president of the company. Mr. Collyer is a graduate of Cornell University and for many years has been prominently identified with the rubber industry in this country and abroad. Upon his graduation in 1917 as a mechanical engineer, he joined the staff of the Bethlehem Shipbuilding Company and later entered the rubber industry with the Dunlop Tire and Rubber Company in Buffalo, N. Y., holding the position of vice president from 1923 to 1929. In the latter year Dunlop Company, Ltd., made him works director of its plant at Fort Dunlop, England, and in 1931 he was appointed controller of manufacture at the Dunlop headquarters. In 1936 he joined the board as director of the company's manufacturing operations throughout the world. He was made managing director of the Dunlop Rubber Company, Ltd., in 1937, resigning that position to accept the presidency of the Goodrich Company.

## Ore Conditioning and Sintering Plant

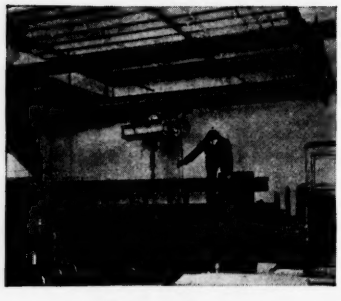
A contract covering excavation work and concrete foundations for the central ore conditioning and sintering plant to be erected at its Wenonah Division of the Red Mountain ore mines has recently been awarded by the Tennessee Coal, Iron and Railroad Company of Birmingham, Ala. Contract also calls for preparation of road beds for railroad tracks to serve the new plant, which will be located near Wenonah Ore Mine No. 7. Approximately 232,000 cubic yards of unclassified excavation will be required to make the site ready for the construction. Excavation and concrete work will start at once and will require about six months. The plant itself is expected to be ready for operation in the late summer of 1940 or early fall.

Low-cost Handling System!



*Storage to Process*



*Truck to Storage*

Since no two overhead handling problems are alike, low-cost solutions are found only in a system that offers extreme flexibility of basic design.

American MonoRail equipment meets varying requirements at low initial cost because standard parts of such flexible design are fabricated into special units and coordinated into systems guaranteed to produce the results intended.

For either manual, electric or automatic operation these systems invariably overcome operating congestion, eliminate costly maintenance and reduce handling expense wherever applied. Engineering consultation is available without obligation.

*A 254 page book used as a technical reference for all data covering Mono-Rail Equipment will be sent on letterhead request.*

**AMERICAN MONORAIL CO.**

**13109 Athens Ave., Cleveland, O.**


## Highest Award in Railroad Safety

"Safety is the supreme consideration of American railroads and, therefore, the first law of good railroading." This is the opening statement in an attractively bound and illustrated booklet announcing that the highest award in railroad safety has again been presented to the Norfolk and Western Railway, of which W. J. Jenks is president. In 1938, railroads of the country made the best safety record in their history, and to the Norfolk and Western and its 20,000 employes goes the distinction of leading the field. This record is significant in view of the fact that the road carried more than 1,200,000 passengers in 1938 for a total of nearly 86,000,000 miles without a single reportable injury in a train accident.

## Stainless Steel Trains for Better Service

The Atlantic Coast Line Railroad and the Florida East Coast Railway will inaugurate, about December 1, a new "streamliner" service between New York and Florida. Each of the two roads has purchased two seven-car stainless steel trains of lightweight construction fom the Edward G. Budd Manufacturing Company of Philadelphia, Pa. One train will be placed in the New York-Miami service, while another will operate on a fast daily schedule between Jacksonville and Miami, the daily service to feature luxury chair-car accommodations. All four trains will be powered with diesel-electric locomotives and each will consist of a 2000-horsepower locomotive, dining car, baggage coach, four all-chair cars and a newly designed combination observation and tavern car.

## Freeport Sulphur Promotes Knapp

T. J. Knapp has been appointed assistant sales manager of the Freeport Sulphur Company, New York City, according to announcement by Langbourne M. Williams, Jr., president. Mr. Knapp has been with the company for 17 years, first serving as superintendent of shipping at the company's headquarters at Freeport, Tex. Since 1930, he has been traffic manager at the New York office. Before joining Freeport Sulphur Company, he was with the Steel Steamship Line as local shipping manager.

## Link-Belt Speeder Corporation

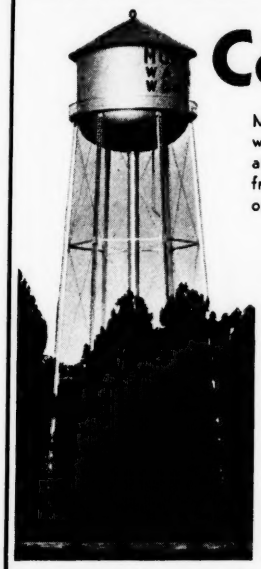
Alfred Kauffmann, president of Link-Belt Company, Chicago, Ill., announces that his company has organized the Link-Belt Speeder Corporation, a wholly-owned subsidiary but operated independently, with headquarters at 301 West Pershing Road, Chicago, for the manufacture and sale of power-operated excavating and materials handling shovels, draglines, cranes, including a full line of track-type locomotive cranes. The organization of the new company follows closely the consolidation of Speeder Machinery Corporation, Cedar Rapids, Iowa. and the Shovel Division of Link-Belt Company, Chicago, which now become the Link-Belt Speeder Corporation. Products of the new corporation will be manufactured both at Cedar Rapids and Chicago, and marketed through authorized distributors. Officers are: Alfred Kauffmann, chairman of the board; T. M. Deal, president; Walter Baker, vice president; W. C. Carter, vice president; H. E. Kellogg, treasurer; G. H. Olson, secretary; O. H. Prather, assistant secretary; H. E. Kellogg, assistant secretary, and F. V. MacArthur, assistant treasurer. The organization committee named the following directors to serve the first year: Alfred Kauffmann, T. M. Deal, Walter Baker, W. C. Carter, H. E. Kellogg.

## Win Safety Certificates

Certificates of the Joseph A. Holmes Safety Association were recently presented to employes of the Tennessee Coal, Iron and Railroad Company's Dolonah Quarry and No. 5 Limestone mine, the presentation being made by C. E. Saxon, principal safety instructor, Safety Division, United States Bureau of Mines. Robert Gregg, president of the company made a congratulatory address to his men whose safety performances won this national recognition.

## Tank Builders For Over 80 Years!

# Cities Served by Cole Tanks



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Many municipal or privately owned water works have had us build tanks and elevated towers to specification from their own engineer's design or ours. Some of the cities served are:

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CLEARWATER ISLAND, FLA.
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ST. PETERSBURG, FLA.
ALBANY, GA.
GASTONIA, N. C. (Million gallon tank)
CEDARTOWN, GA.
SPARTANBURG, S. C. (Million and a half gallons)
NEWNAN, GA.

In addition to water tanks we also build tanks for acid, dye, oil, creosote, chemicals, etc., as well as other fabricated products of Quality steel and alloy steel plate. Let us figure on your requirements.

Write for "Tank Talk"—No. 8-D.

**R. D. COLE MANUFACTURING CO.**
ESTABLISHED 1854
NEWNAN GEORGIA

# $1795.46 SAVED!
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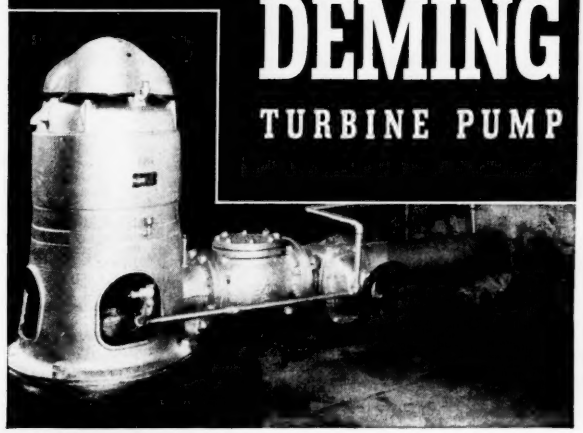

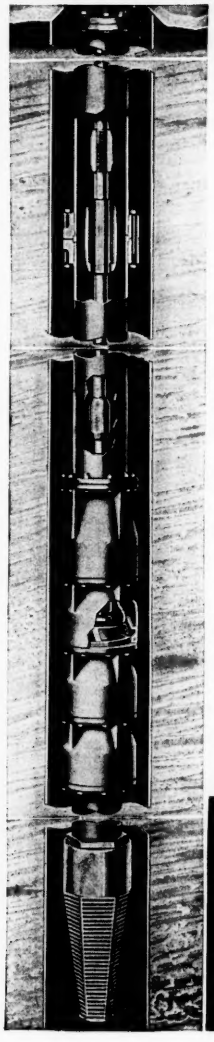

Year after year, city water was costing a mid-western manufacturer over $3000 annually. Then he learned that well water was available on his own property. Here's what happened after he investigated and purchased a Deming Deep Well Turbine Pump.

| | |
|---|---|
| $3500.00 | Cost of well and pumping system. |
| 175.00 | Interest on investment at 5%. |
| 350.00 | Depreciation and maintenance at 10%. |
| 873.25 | Average annual cost of electricity. |
| 1398.25 | AVERAGE ANNUAL COST OF WELL WATER. |
| 3193.71 | Average annual cost of city water. |
| $1795.46 | AVERAGE ANNUAL NET SAVINGS. |

While conditions vary in every plant, facts prove that Deming Deep Well Turbine Pumps merit your investigation on the basis of potential savings in your water costs. Write for Bulletin and complete details.

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**DEMING PUMPS**

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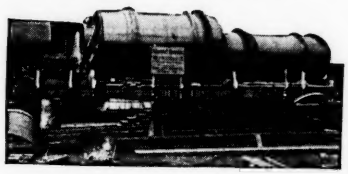
—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment.

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**CHATTANOOGA BOILER & TANK CO.**
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# "COMMERCIAL" TUNNEL LINERS

Most efficient method of roof support. Can be adapted to any size or shape of tunnel. Provides maximum safety.

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**THE COMMERCIAL SHEARING AND STAMPING CO.**
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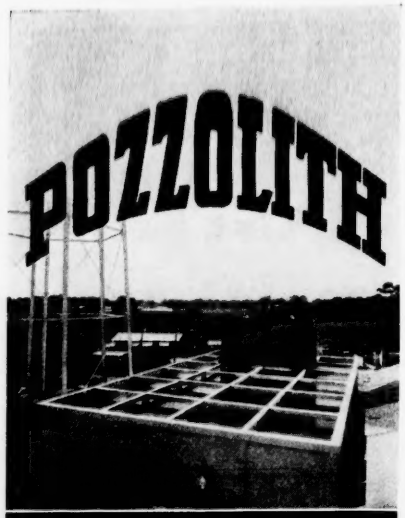


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*··· 5,139 Pounds Per Sq. Inch*

"The Pozzolith used has far exceeded our expectations," says Mr. C. Kenneth S. Dodd, Consulting Engineer on the Areator Basin, Sarasota, Florida. "I am so well pleased with it that it will be incorporated in all future specifications."

"I am recently in receipt of a test report for 7 day strength of 5,139 pounds per square inch on the cylinders taken from the floor in which the total water amounted to 4.5 gallons per sack, and the slump was five inches. Seven day strength specified was 1,750 pounds per square inch . . . The contractor is as well pleased with it as we are." Class A concrete. 1.5 bbls. cement per cu. yd.

Similar Pozzolith performance is available . . . send for it today . . . it tells how others are building more durable, watertight concrete, easily and economically.

**SEND FOR THIS IMPORTANT TEST!**

Freezing and thawing tests on Pozzolith concrete made by a leading university laboratory — authority in concrete research — show concrete durability is tripled by Pozzolith. Your copy of this report sent free upon request.

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# TRADE LITERATURE

**DAVISON'S TEXTILE BLUE BOOK**—The publishers announce the completion of their 74th Year Davison's Textile Blue Book as of July 27, 1939. It is a complete annual register of the textile industry, with no information printed without authority or a personal revision or okay. Reports, in detail, cover: 2394 cotton mills; 939 woolen and worsted mills; 153 carpet and rug mills; 1150 rayon and silk mills; 2081 knitting mills; 158 jute linen, flax, sisal and hemp mills; 502 Canadian mills; 560 Mexican mills; 1481 mills operating their own dye houses; 733 dyers, finishers, bleachers and printers; 109 sanforizers, and 36 mills in Cuba.

Looms, spindles, cards, combs and other machinery have been tabulated by states and are shown in special tables. In cooperation with the United States Department of Commerce and other agencies, and after considerable research and other work, a revised clasification of cotton mills has been provided according to product made in each mill. The new 74th Year Blue Book is actually 24 directories in one volume, covering in detail, Cotton Mills; Woolen and Worsted Mills; Rayon and Silk Mills; Knitting Mills; Jute, Linen and Flax Mills; Canadian Mills; Mexican Mills; Mills in Cuba; Dyers and Finishers; Sanforizers; Mills with Dye Houses; Commission Merchants; Dry Goods Dealers and Converters; Yarn Dealers; Raw, Thrown Silk and Rayon Firms; Cotton Dealers (both domestic and foreign); Wool Dealers; Linter Dealers; Waste Dealers and Manufacturers; Wholesale Rag and Remnant Dealers; Textile Supplies; New Textile Mills; Classified Directory of Mills; Textile Associations.

Outstanding features of the volume are the new Cleartype Style Textile Maps, revised to date, showing towns where there are textile mills, dyeing, bleaching or finishing works. A section showing all mills with dye houses is valuable for chemical and dyestuff firms. There is also a classified directory of dyers and finishers.

Two editions are issued. The Deluxe office size and the "Handy Edition." The Salesmen's Directory is much smaller than the Handy Edition, but contains full reports of textile mills, dyers, finishers and bleachers arranged alphabetically—all mills under each town, which is different from the Textile Blue Book which sub-divides them into Cotton, Woolen, Silk, Knit Goods, Etc.

The volumes may be obtained from the publishers, Davison Publishing Company, whose new executive, production and sales offices are at Ridgewood, N. J., formerly at 50 Union Square, New York City.

**"CATERPILLAR" DIESEL POWER—**
Folder—presenting a pictorial and brief description of unusual jobs being accomplished with "Caterpillar" Diesel power.
**Caterpillar Tractor Company,** Peoria, Ill.

**MAINTENANCE COSTS—**
Folder—"How to Cut Maintenance Costs," dealing with the new FLEXROCK Hand Book and presenting illustrations showing installations of RUGGEDWEAR Resurfacer.
**Flexrock Company,** Philadelphia, Pa.

**SILENT CHAIN DRIVES—**
Catalog — "Whitney Silent Chains and Sprockets," illustrated, devoted to Whitney silent chain drives and spockets, designed to serve every industry; with index, specifications and prices.
**The Whitney Chain and Manufacturing Company,** Hartford, Conn.

**SPEED CHANGER—**
Bulletin B6013—illustrating and describing the Allis-Chalmers Vari-Pitch Speed Changer and showing how these units aid in "Keying Production to Profits," the bulletin covering manual and electrical remote controlled units, dimension sheets, horse power and speed range tables.
**Allis-Chalmers Manufacturing Company,** Milwaukee, Wis.

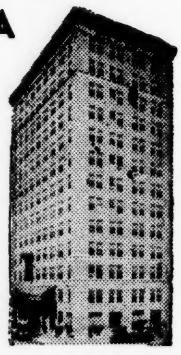
**LIQUID SCREENS—**
Bulletin No. 107—illustrating and describing Robins Liquid Screens, designed for three main purposes: to clarify a liquid; to dewater a solid, and to combine these two operations; screens intended to serve process industries and in other applications where mechanical means are required for separating solids from liquids.
**Robins Conveying Belt Company,** New York, N. Y.

**HYDRAULIC DUMP UNITS, ETC.—**
Office Publication—"Heil Quality News," devoted to The Heil Company's products, including Hydraulic Dump Units, Transportation Tanks for Gasoline and Fuel, Stainless Steel Milk Tanks, Hydraulic Scrapers, Tamping Rollers, Bottle Washing Machines, Individual Water Systems, Etc.
**The Heil Company,** Milwaukee, Wis., and Hillside, N. J.

**ELASTIC STOP NUTS—**
1939 Catalog and Data Book—56 pages, devoted to the Elastic Stop principle, whereby the nut is locked to the bolt through the action of a resilient non-metallic collar which eliminates thread play between nut and bolt.
**Elastic Stop Nut Corporation,** Elizabeth, N. J.

**TILE CONDUIT—**
Bulletin No. 35-67B—12 pages, illustrating and describing in detail ADSCO-Bannon Tile Conduit for underground steam or hot water lines; also presents data on ADSCO Cast Iron Conduit for reinforcing steam lines under roadways, and on ADSCO-Fiberglas Insulation for the thermal insulation of underground lines.
**American District Steam Company,** North Tonawanda, N. Y.


BIRMINGHAM
ALABAMA



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RADIO IN EVERY ROOM
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By making concrete pipe on the job with Quinn Forms you give more men more work, can use less experienced labor and produce uniform concrete pipe of highest quality. Recognized standard of all concrete pipe.

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**SERVE LARGE AND SMALL CITIES**

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INTERNATIONAL WATER SUPPLY, LTD., LONDON . . . . . ONTARIO, CANADA

If your city is in need of more water either from old wells, or by the installation of new, Layne is the firm on whom you can fully depend. Layne engineers will cooperate in providing facts, figures and specifically helpful information. Request free bulletins by addressing,

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**LAYNE**

**PUMPS & WELL WATER SYSTEMS**
*For Municipalities, Industries, Railroads, Mines and Irrigation*

# All-Welded Open Hearth Ladles

THE Tennessee Coal, Iron and Railroad Company has received its first two all-welded open hearth ladles for service at its Ensley, Ala., works.

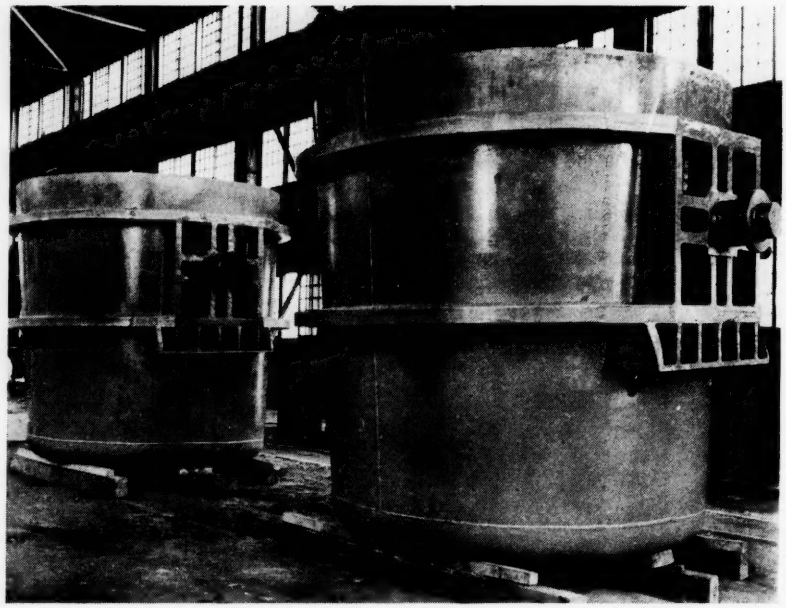
Each ladle has a capacity of approximately 140 net tons, and weighs 39,250 pounds without the lining. The dimensions are as follows:

| | |
|---|---|
| Top, major axis, inside ... | 11 ft., 3¾ in. |
| Top, minor axis, inside ... | 10 ft., 5 in. |
| Bottom, major axis, inside | 10 ft., 0¼ in. |
| Bottom, minor axis, inside | 9 ft., 1½ in. |
| Depth, inside ..... | 11 ft., 2¼ in. |
| Trunnion center to center | 12 ft., 4 in. |

With respect to distinctive design features, the ladle, which was built by Blaw-Knox Company, is truly all-welded, including the trunnion construction and reinforcement members. The trunnions proper are solid forgings of 12 inch diameter with a shank on each about 16½ inches square. This shank extends through the ladle shell, to which it is fully welded. On the outside of the shell, a system of vertical and horizontal ribs is welded to the trunnion shank as well as to the face of the shell.

A further point in the design is the attachment which may be noted between these ribs forming the trunnion pads and the heavy stabilizing rings that girdle the ladle.

This form of construction definitely ties together the shell, the trunnions, and the stabilizing rings, which all act together to carry the load. There is no reliance on the rings themselves to resist the torsional moment since the shell plate and reinforcement members—being welded together—act as one unit. This is considered to benefit the life of the lining. Moreover, there is a design advantage in that the proportional strength of the shell plate is taken into account, enabling lighter, "stream-lined" construction with consequent increase in crane pay-loads.



The bottom of the ladle is butt-welded to the shell and has a dish form rather than the flat shape common to some of the older type ladle bottoms. Long service usually deflects a flat bottom to at least a semi-dish, and it is almost impossible without excessive reinforcement to prevent this occurrence. The elimination of abrupt changes of section reduces the possibility of severe localized stresses. Both this accomplishment and the form of the ladle bottom are also considered to benefit the life of the lining—and of the ladle as a whole.

# Winston-Salem Water Improvements

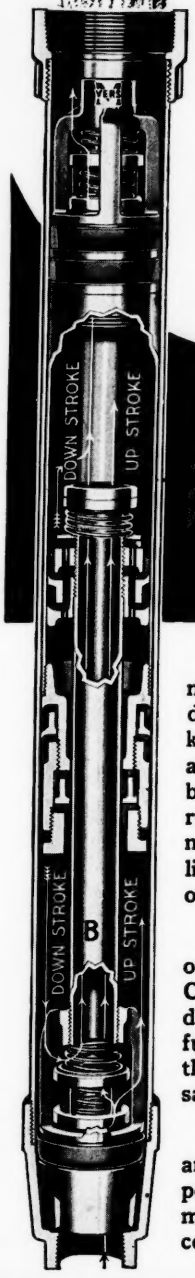
For the improvement and increased capacity and efficiency of its water system, the City of Winston-Salem, North Carolina, recently installed three elevated tanks with capacities of 1,000,000 gallons, 200,000 gallons and 50,000 gallons. The 1,000,000-gallon tank is 87 feet, 6 inches to bottom; the 200,000-gallon tank, 101 feet, 6 inches, and the 50,000-gallon tank 127 feet. In addition to these elevated storage tanks, the city also installed a booster pumping station and constructed water main extensions in the low pressure areas to provide additional pressures to those sections not having sufficient pressure for household purposes. The pressure in this area was raised from a minimum of approximately 3 pounds to 30 pounds.

The tanks were constructed by the Chicago Bridge and Iron Company of Chicago, Illinois, and foundations and pumping stations by the Northeastern Construction Company of Winston-Salem. The project, a PWA job with a 45-percent grant to the city from the Federal government, originated under the direction of Harry L. Shaner, at that time Commissioner of Public Works, who died before the application was approved. R. A. Thomas, Mr. Shaner's assistant, was made Commissioner, and under his direction the application was put through. Mr. Thomas handled the engineering for the city, including preliminary investigations, recommendation and design for the improvements, with R. E. Chilton as resident engineer on construction work.

In addition to the Winston-Salem installation, the Chicago Bridge and Iron Company recently erected a 750,000-gal-

(*Continued on page 58*)

# A GUSHER of SALES and Satisfaction with MYERS DOUBLE ACTING CYLINDERS




Today Myers brings you the most modern, the most dependable double acting cylinders on the market. There is nothing experimental about them. Designed by experts, built to precision standards, their reputation for dependable and economical service is firmly established in pump circles the country over.

Whether conditions are regular or otherwise, Myers Double Acting Cylinders satisfactorily solve most deep well pumping problems. They furnish the plus volume of water that lowers pumping costs and satisfies the most critical of users.

If you require more water from any source at lower cost than is possible to secure by ordinary methods write us for circular and complete information.

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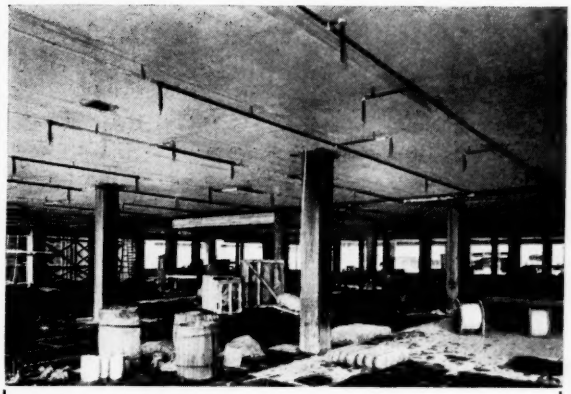

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*ELI LILLY & CO., INDIANAPOLIS, IND.*
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HAVE ALL FLAT CEILINGS
AND
THE MOST PRACTICAL, FLEXIBLE
FLOOR CONSTRUCTION YET
DEVELOPED.

FOR NEW BUILDINGS OR
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**"SMOOTH CEILINGS" SYSTEM, PTD.**
*See Sweet's Catalogue*
**802 Met. Life Bldg., Minneapolis, Minn.**

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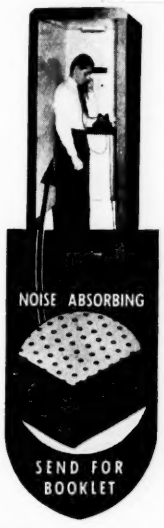

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Burgess Battery Company, Dept. K, 500 W. Huron St., Chicago
*Manufacturing under Burgess Patents*

**BURGESS**

# FOREIGN TRADE OPPORTUNITIES

(*Continued from page* 27)

## COLOMBIA

German exports to Colombia in 1938 totaled $16,587,324, but the value of German goods imported into Colombia during 1937 was $12,871,000. Details of the latter are:

| *Commodity* | *Value (U. S. Dollar)* | *% of commodity supplied by Germany* | *Other major sources of supply with their percent of the commodity* |
|---|---|---|---|
| Textiles, total | 1,529,500 | 7.4 | U. K. 55.5, U. S. 20.2, Bel. 2.8 |
| Machinery & apparatus, total | 2,264,925 | 11.8 | U. S. 75.6, U. K. 5.7, Swed. 1.9 |
| Metallic manufactures, total | 2,452,950 | 24.6 | U. S. 54.2, U. K. 8.7, Bel. 5.2 |
| Transportation materials | 315,100 | 4.5 | U. S. 90.6, U. K. 2.7, Can. 1.3 |
| Chemical products | 2,400,625 | 32.7 | U. S. 41.7, Fra. 12.0, U. K. 6.2 |
| Metals, partially manufactured, total | 300,150 | 6.9 | U S. 64.3, Bel. 17.9, U. K. 5.2 |

## CHILE

The value of German exports to Chile in 1938 aggregated $24,320,146. German goods imported into Chile in 1937 totaled $23,014,000 and were classified as follows:

| *Commodity* | *Value (U. S. Dollar)* | *% of commodity supplied by Germany* | *Other major sources of supply with their percent of the commodity* |
|---|---|---|---|
| Textiles total | 651,000 | 25.3 | U. K. 31.4 & Jap. 13.1 |
| Chemicals & allied products—total | 492,275 | 26.2 | U. S. 28.9 & Peru 12.8 |
| Metals, semi & manufactures except machinery & tools—total | 1,017,835 | 47.2 | U. S. 33.4 & U. K. 10.7 |
| Machinery & tools | 850,815 | 40.2 | U. S. 44.7 & U. K. 8.6 |
| Vehicles & parts, total | 227,710 | 26.4 | U. S. 63.9 & U. K. 5.0 |
| Miscellaneous manufactures, total | 587,615 | 40.0 | U. S. 29.6 & U. K. 6.0 |

## VENEZUELA

Imports of German goods into Venezuela in 1937 amounted to $11,701,000. In 1938 however, German exports to Venezuela totaled $15,391,776 and included the following:

| | |
|---|---|
| Cement | $371,850 |
| Silk, rayon and synthetic fiber goods | 420,090 |
| Cotton goods | 658,878 |
| Miscellaneous textile goods | 658,476 |
| Leather and leather goods | 465,516 |
| Stone, earthen, and porcelain wares | 272,556 |
| Glass and glassware | 794,730 |
| Iron & steel pipes and tubes | 2,197,332 |
| Iron bars and shapes | 151,554 |
| Tools and agricultural implements | 237,984 |
| Miscellaneous iron & steel goods | 1,688,400 |
| Copper goods | 410,442 |
| Power machinery | 317,178 |
| Miscellaneous machinery | 1,017,954 |
| Boats | 221,100 |
| Autos and aircraft | 397,176 |
| Electrical machinery & equipment | 560,790 |
| Precision instruments | 332,856 |
| Pharmaceuticals | 849,426 |

## Other Contiguous Countries

(*Continued from page* 27)

into Nicaragua in 1937 was $857,000. Exports of German goods in 1938 including cotton manufactures in the amount of $129,444, amounted to $513,354.

In 1937, Panama imported German goods valued at $1,169,000, but German exports in 1938 were placed at $832,944. Except for steel pipes worth $121,806, the majority of commodities had a value below $25,000.

Imports of German goods into Paraguay in 1937 amounted to $1,194,000 while German exports to the same country in 1938 were valued at $868,320. There were no commodities of outstanding value.

The value of German goods imported into El Salvador in 1937 was $3,109,000. In 1938, German exports to El Salvador totaled $1,339,860 and included cotton manufactures, $225,120, miscellaneous iron wares, $108,138; automobiles and airplanes, $111,354; and pharmaceuticals, $137,484.

## New Meat-Packing Plant in North Carolina

Organization of the Bertie Packing Company, Windsor, N. C., capitalized at $60,000, was recently announced. Construction of the first unit of the plant will commence within the next few weeks.

The Windsor unit is the first to be announced in the present drive for packing plants made by the Division of Commerce and Industry, N. C. Department of Conservation and Development. State Industrial Engineer Anderson expects a second plant to be announced for Eastern North Carolina before the end of the year.

The new plant will be built to federal government specifications, and with government inspection will be able to ship meat products to other states for distribution.

## Operation of Sterling Engine Company Turned Over to Younger Executives

Charles A. Criqui, Sr., the founder and for 33 years president of the Sterling Engine Company, of Buffalo, has announced that he has turned the actual operation of his company over to younger executives, and he hopes in coming years to take a less active part in the direction of the corporation.

A leader in the marine and industrial engine field for more than three decades, Mr. Criqui stated that in the future he intends to spend more time in traveling, desiring as he does to be relieved of the close tie-up to business and the heavy direct responsibility which he has carried for many years. He will continue to play a prominent part in the affairs of the company, however, and will serve as chairman of the board of directors, as well as on the executive committee.

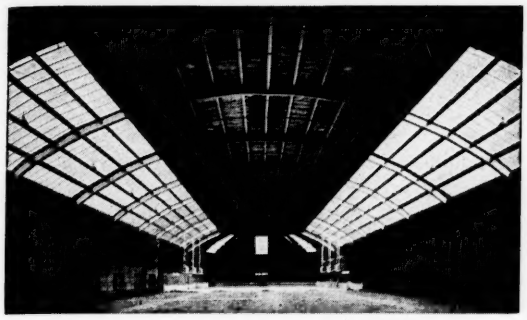
Mr. Criqui announced that the active heads of the company will be Spencer H. Logan, of New York, the new president, and Addison F. Vars, Buffalo and New York advertising executive. Vars, who has been an officer and director of the Sterling company since the death of his father, Harry T. Vars, in 1926, fills a new post of executive vice president. Charles A. Criqui, jr., continues as an official of the corporation and also has been named to the board of directors.

Logan, who is president of the Nutro-Sodium Corporation and a director of Consolidated Copper Mines, has been interested indirectly in the Sterling company since 1916, and has taken over the holdings of the late O. E. Foster and U. S. Thomas, who with Mr. Criqui and the late Mr. Vars, were the organizers of the corporation back in 1906.

The fifth member of the new board of directors is Frank G. Cooban, of Buffalo, vice president of the Hewitt Rubber Company, many of whose interests in the industrial field parallel those of Sterling.

## Correction

The September issue of MANUFACTURERS RECORD carried a brief story entitled "Chicago Bridge & Iron Co. Celebrates 50th Anniversary." In the second paragraph of that item appeared the following line: "The plant was built in 1925 and, when taken over by Virginia Bridge and Iron Company, consisted . . . " The line of course, should have read: "The plant was built in 1925 and, when taken over by Chicago Bridge and Iron Company, consisted . . . "



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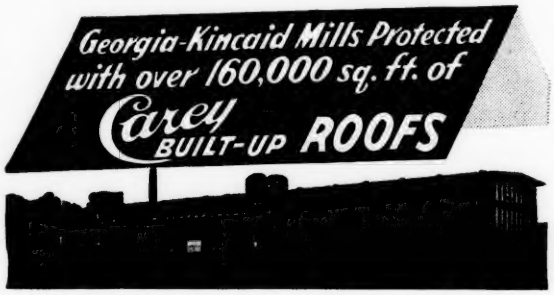


This mammoth textile enterprise at Griffin, Ga., consists of six separate manufacturing units, covering over 30 acres. Carey Roofing Products have been adopted as standard, both for the mills and for the 400 operators' attractive cottages.

The flat roof surfaces are covered with Carey Asphalt and Asphalt Felt Specification Built-Up Roofs. Most of the cottages are roofed with Carey Double Coverage Asphalt Shingles.

Carey Roofs are backed by over half a century of roofing experience. Thousands of plant owners, like Georgia-Kincaid, have found that Carey Roofs last years longer—cost less per year. Whatever your roofing problem, put it up to Carey. No job is too big or too small. Service available through a nationwide organization. For complete details address Dept. 61.

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FRICK CO.
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## Chemical Research & Coal

(*Continued from page 30*)

a few months will provide yarn for fine hosiery. An eight million dollar plant is now being constructed in Wilmington for the manufacture of nylon and $2,000,000 is being expanded for the expansion of the West Virginia plant near Charleston for the preparation of the intermediates.

"These," he said, "are but a few examples of the hundreds of accomplishments achieved by scientific research since the last great war. Our diversified chemical industry, which did not exist in 1914, is well-organized, well-equipped, well-manned today. It stands as a solid guarantee of American self-sufficiency. Never again will the orderly course of our industrial life, which depends upon chemistry, be disrupted by wars beyond our shores. Never again will our people be deprived of many vital medicinals for the preservation of health.

"In 1914 this country had only about 200 industrial laboratories. In 1938, in contrast, 1,769 companies reported research laboratories. These employ some 32,000 trained workers. Industry's appropriation for research last year was probably $250,000,000.

"It should be emphasized that research within the chemical industry has benefited not only the chemical industry, but practically all industries, supplying them at steadily reduced prices with the materials needed for their manufacturing operations. Among such products might be mentioned refrigerants used in the manufacture of ice, in domestic refrigerators and in air conditioning; chemicals used by the textile, rubber, paper and leather industries; insecticides, fungicides and fertilizer chemicals for agriculture; photographic chemicals and film for the giant motion picture industry; upholstery materials, finishes, and electroplating chemicals for the automobile industry; and literally hundreds of drugs and chemicals used in the prevention and cure of disease."

Dr. Hunt told the conference of the increased expenditures being made for research in the food, steel, and petroleum industries and said the fact that the bituminous coal industry several years ago undertook a program of cooperative research indicates the possibilities of research in the industry.

"I feel that an industry as vital as yours should, and will, find a way to engage in a program of continuing research that will revolutionize the industry," he said.

"Of direct interest to you is the fact that chemicals having their origin in coal enter into the manufacture of many products used by the textile industry. You are familiar with the story of synthetic dyes, sometimes called coal-tar dyes because of their origin, but you may not know that chemicals derived from coal are also used in making certain of the better mildew inhibitors, wetting agents, and water-repellent finishes.

"It may interest you to know that the fabric with which your coat is lined is quite likely derived in part from coal. If your coat is made of duPont acetate rayon, and there is a very good chance it is, then this rayon was made from cellulose acetate, which in turn was made by treating cotton linters with acetic acid. From coke and limestone one makes calcium carbide; calcium carbide and water give acetylene, the gas once used for automobile and bicycle lights, and from acetylene the chemist makes acetic acid, the acid which in diluted form is found in vinegar.

"Research has not merely contributed to existing industries, it has actually created wholly new industries. This is of inestimable value, both to industry and to society. If our present economic system is to survive, as it will, industry must grow.

"There are those who contend technological advances are at the root of certain of our present-day economic and social ills. In my opinion, not too much, but too little, technological advance has been made. What we need, and what we must have before business conditions are substantially improved, is industrial expansion sufficient to provide permanent jobs for all who wish to work.

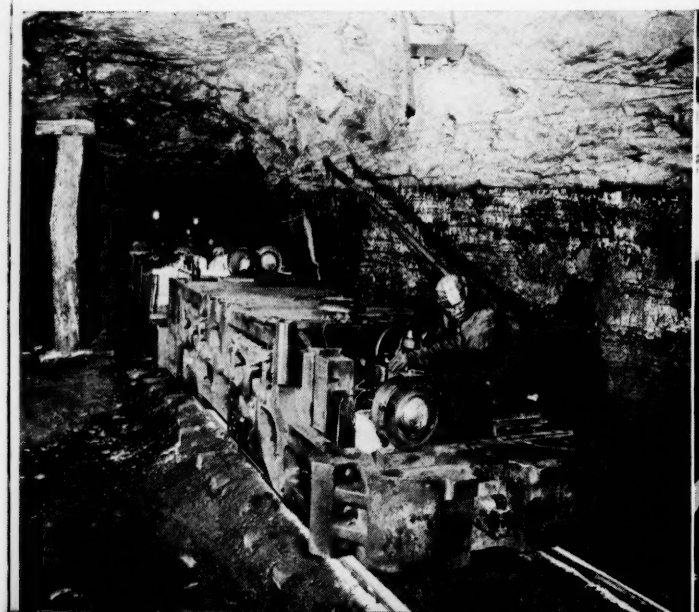
"Granting the importance of research in the exact sciences, more intensive research should be carried out in the fields of economics, sociology, and psychology, or, to express it in somewhat different terms, in the fields of management, distribution, salesmanship, and human relations.

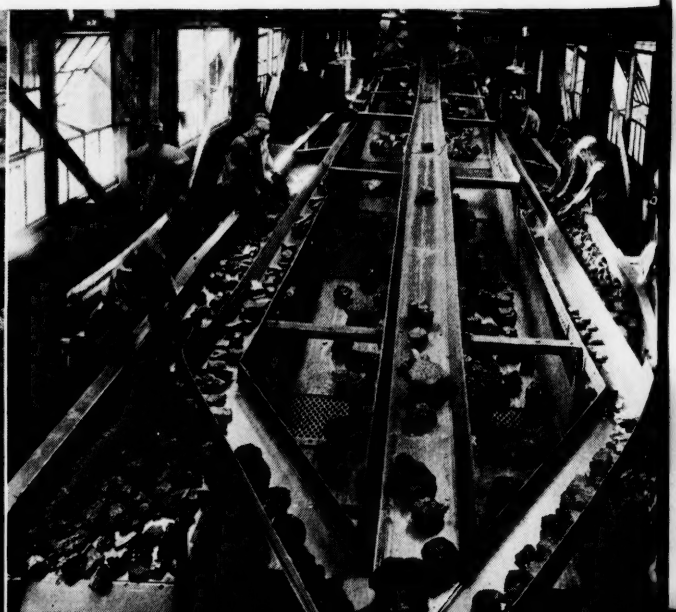
"I do not profess to know the solvent which will effect the solution of our present social ills and insure steady industrial development. The success with which complex chemical and physical problems have been solved by a truly scientific approach suggests, however, the possible application of the same methods to economic and social problems.

"What I should like to see is the scientific method applied, so far as is possible, to every phase of our national life, and when this has been done, a great forward step will have been taken toward the amelioration of all our ills, social, industrial, or otherwise.

"Alongside our industrial laboratories for research in the physical sciences, possibly we shall one day see other laboratories, likewise supported wholly or in part by industry, dedicated to research in the human sciences; and in these laboratories of the future, theories of economics, sociology, advertising, merchandising, industrial management and public relations will be subjected to the most rigid scientific tests possible, tests that will separate the true from the false. It is my thesis that a proper correlation of the truths uncovered in these laboratories supplemented by wise business management and a friendly governmental attitude might well usher in an era of unprecedented material and spiritual prosperity."

***Left—Coal enroute to the surface. Right—A modern picking table where impurities are removed and size of coal is inspected.***





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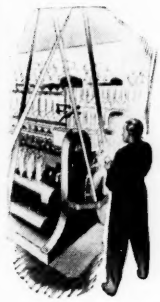


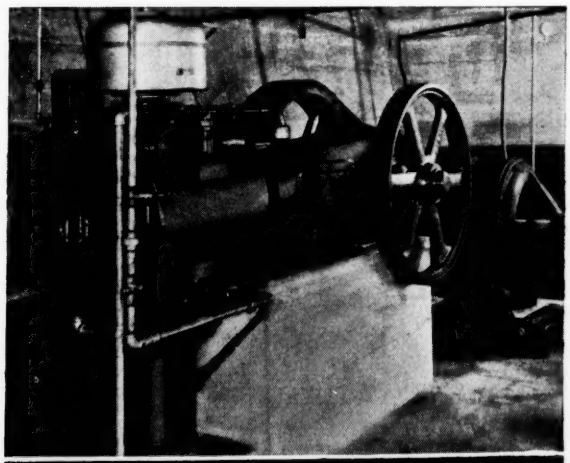
says owner of this

## GARDNER-DENVER "RX" COMPRESSOR Installed in Southern Yarn Mill

● When an air compressor exceeds all expectations for economy in textile mill service—that's news! And that's exactly what happened with the 12x9 Gardner-Denver "RX" Compressor recently installed in a large southern yarn mill. The machine has now been in service nearly a year, furnishing air at 35 lbs. pressure to 126 self-cleaning atomizer heads. These heads are evaporating 1,413 lbs. of water per hour for the humidifying system in the spinning, carding and winder room. In addition, the unit also furnishes air for operating cleaning nozzles throughout the entire mill. The low-cost service of this "RX" compressor is being utilized eight hours a day, 44 hours a week. The compressor operates at 325 r.p.m., and has an actual air delivery of 315 cubic feet per minute.

Gardner-Denver "RX" Compressors require unusually low horsepower per cubic foot of air delivered. They have cushioned Duoplate valves that actually become tighter with use—positive lubrication—electro-pneumatic control that automatically fits air output to air needs. Adaptable to any type drive, Gardner-Denver "RX" Compressor will save money and increase efficiency in YOUR mill. Write for complete information and operating data. Gardner-Denver Company, Quincy, Illinois.

Branch Offices: Atlanta, Ga.; Birmingham, Ala.; Knoxville, Tenn.; Dallas, Texas; Houston, Texas; Washington, D. C.



GARDNER-DENVER 80th ANNIVERSARY YEAR

## Reducing Payroll Costs

(*Continued from page* 29)

pay column, the operator again depresses a single key, and the amount of net pay is automatically printed.

In less time than it takes to tell about it, the line of posting is completed, the completed forms removed, the machine carriage returned electrically to the starting position, and the next set of forms inserted.

Instead of addressing a pay envelope with the employee's name and social security number, the employee's statement is folded and placed in a window envelope in such a manner that his name and number show through. When the payroll has been completed, a summary journal is prepared showing the totals for all departments.

The Burroughs Payroll Machine used on this work automatically accumulates all desired totals in a department and prints them at the bottom of the departmental sheet from single key depressions. Totals "remembered" by the machine in that fashion include: regular hours worked, regular pay, overtime hours worked, overtime pay, gross pay, unemployment tax, Federal old age tax, and net pay.

Proof of correct posting is furnished by the machine which, beneath the total net pay, prints the sum of that figure plus all deductions. This sum, in turn, must agree with the total gross pay as shown at the foot of the gross pay column.

With the various totals always instantly available on the records, Social Security reports are easily and quickly prepared, and analysis of plant activity can be made quickly by the management at any time.

Supplementing the machine accounting work, and rounding out the entire payroll operation, is a fast, low-cost method of sorting the time cards into a desired sequence and of sorting individual earnings record cards into the correct order for quarterly Social Secruity reports to the government.

After the distribution cards and daily earnings records have been written on the Buroughs, they are sent to a second clerk for putting into the desired arrangement.

The first step is to add the direct and indirect labor cards separately, obtaining a total for each. The clerk then punches each direct labor card with an electric key punch to code it with the following information: Order number, employee's number, drawing number, and department number. Using a steel tumbler, or "needle" it is then easy to numerically sort the cards by order number so that they can be filed away for reference purposes. When the order is completed, the cards for the job are pulled and added to obtain the total job cost.

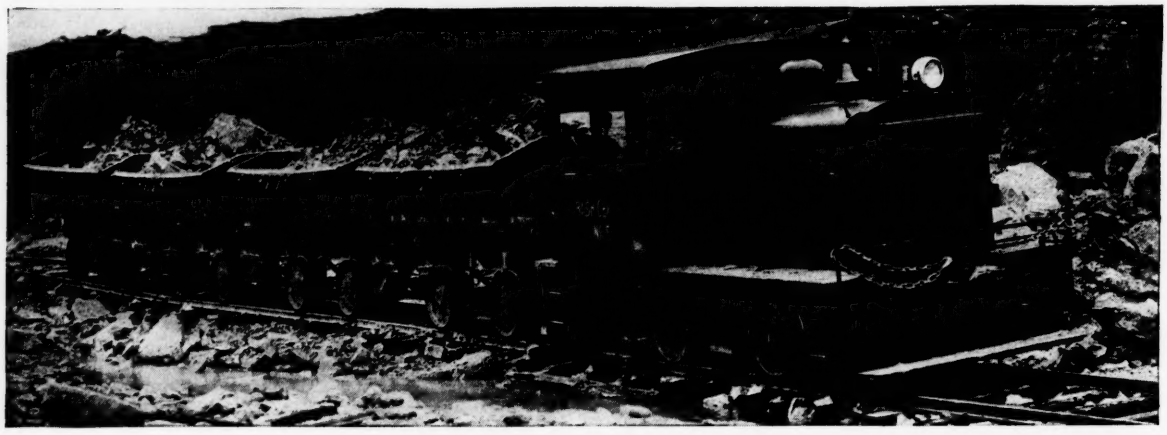
The weekly individual earnings cards are punched according to the man's clock number, but are filed away by departments, only being arranged by clock numbers when Social Security reports are to be prepared. When the report is finished, they are resorted by departments again.

Expressing complete satisfaction with their entire payroll accounting set-up, Mr. Durell said: "It has meant a real saving to us, and yet it is so efficient and flexible that any increases we have in shop personnel will be absorbed into this new system without even being noticed."

## American Institute of Steel Construction Convention

The American Institute of Sttel Construction will hold its Seventeenth Annual Convention at the Waldorf-Astoria Hotel in New York City on October 17 and 18 next.

E. T. Weir, Chairman of the Board of the National Steel Company, will make the banquet address on Tuesday evening, October 17. Two special luncheon meetings on October 17 and 18 will be addressed by A. D. Whiteside, Pres., of Dun & Bradstreet, and Paul G. Hoffman, Pres., of the Studebaker Corp., respectively.

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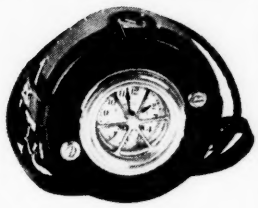

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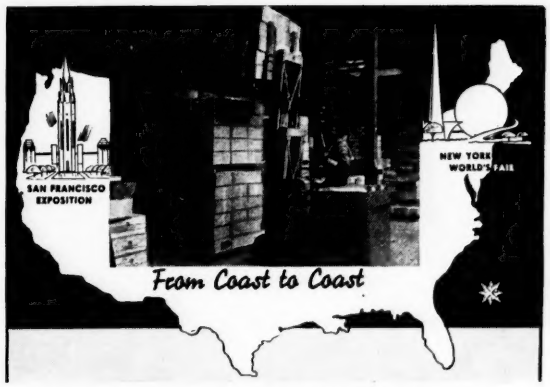


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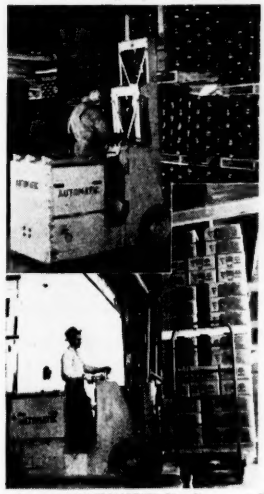

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## $3,000,000 Pulp, Paper Plant Announced for Pensacola

Construction on a $3,000,000 pulp and paper plant at Pensacola, Fla., is expected to be started by February, 1940, according to plans of the Florida Pulp and Paper Co., a new concern organized by J. H. Allen, former vice president and director of the Union Bag and Paper Corp., at Savannah, Ga., and A. D. and J. C. Pace, of Pensacola.

The initial unit, it was announced, will consist of a pulp plant and bleaching plant. This to be expanded by construction of other units later. Approximately 500 workers would be employed at the start. The mill will operate under a new Swedish process by which 80 per cent of the odor will be eliminated.

Mr. Allen, who has resigned from the Union Bag and Paper Corporation, has been connected over a period of years with paper manufacturing developments in the Southern States. He was active in establishing paper mills at Mobile, Ala., Panama City, Fla., Bastrop, La., Camden, Ark., and Savannah, Ga. The last mentioned two were among the first to be constructed under the recent rapid expansion of paper manufacturing in the South, where within a period of a few years more than $100,000,000 has been spent.

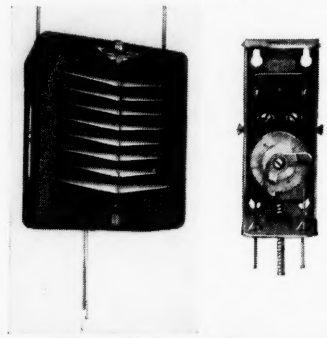
The Pace interests, who were instrumental in bringing the Savannah executive to the new enterprise, are contributing 95,000 acres of Santa Rosa County timberlands, as well as other capital into the newly formed company. Seventy-five per cent of the required fund, which is placed at $3,000,000, has already been obtained, it is understood.

Economic factors in the Pensacola area listed as advantages by Mr. Allen include: lands in which the required timber can be grown quickly; low transportation costs; abundant fresh water supply; climate insuring 12 straight months of working time; low cost hydroelectric power to the north; natural gas from fields to the west; exemption from taxes for a period of years. Municipal authorities and local chamber of commerce officials have pledged their cooperation in making the venture a success. Attending the meeting at which the announcement was made were:

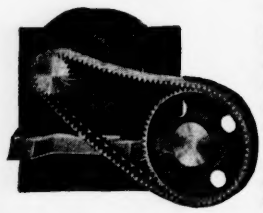
City Councilmen J. A. Baillies, Edward McCullough, Frank Riera, Archie S. Mills, George H. Hallmark, J. T. Wright, Walter Wicke and Maj. Jack Maher. An offer of cooperation was sent by Mayor pro tem T. Chester Smith through City Manager V. A. Bruno. Jack Shoemaker, president of the Pensacola Chamber of Commerce, and L. C. Parks, chairman of the Chamber's industrial committee, also assured their cooperation.

## Individual Automatic Temperature Control

Built-in individual automatic control of daytime and nighttime temperatures is provided by the Grinnell Automatic "Thermolier" Unit Heater, manufactured by Grinnell Company, Inc., of Providence, R. I. Operating at an unusually low cost, it is claimed, the control may also be easily added to existing unit heaters of any manufacture, as it is only necessary to tie it into the line at the heater itself, thus eliminating the cost of special wiring. The heart of the device is a bulb-type thermostat containing a solid liquid charge, mounted within the heater housing. Two pointers—one for day and one for night—may quickly be adjusted over a 60-degree range and locked. Thereafter, day and night settings are made by a simple pull-cord control hanging from the heater. A special setting makes possible summer operation of the fan alone, under automatic thermostat control.



*"Thermolier" Unit Heater*

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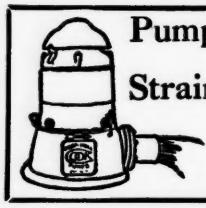

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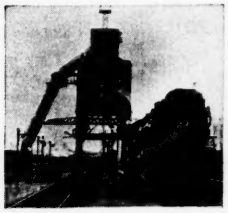
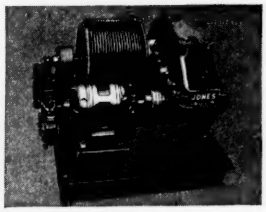
HERE are three views of Jones Herringbone Reducer units that were built to meet special requirements and unusual service conditions. They are typical of many modifications that have been made of Jones Herringbone Worm and Spur Gear Reducer units for a wide variety of industrial applications.

Along with your requirements for standard drives the Jones organization offers a broad service on special drive units.



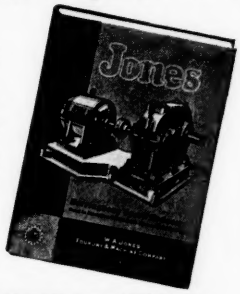


● A locomotive coaling station equipped with a Jones skip hoist unit. These skip hoists are built as complete units by the Jones organization.

● This hydraulic dredge has Jones Herringbone Reducers for driving the cutter head shaft and the drums.

● An oil field pumping unit driven by a special Jones double type Herringbone Reducer through V-Belts from a gas engine.

Both standard and special applications of Herringbone Reducers are covered in this Jones Catalog No. 70. Technical information shows how to select reducers for all conditions of service in accordance with the A.G.M.A. recommended practice.

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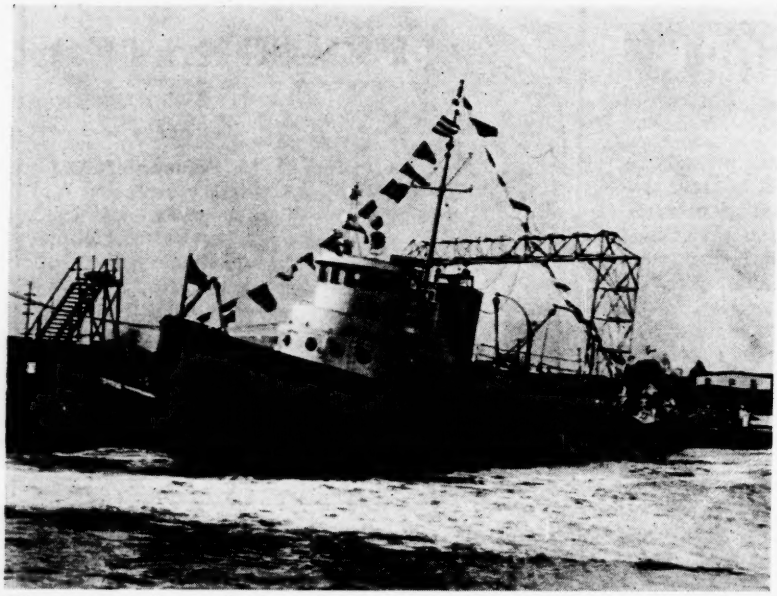


*The Coast Guard cutter "Mahoning" as it was launched last month from the Gulfport Boiler and Welding Works at Port Arthur, Tex. Christened by Miss Molly O'Daniel, daughter of Governor W. Lee O'Daniel of Texas. The Mahoning is 110 feet long, 26½ feet wide, has a draught of 10½ feet, displaces 328 tons, and the diesel-electric motors provide a cruising speed and radius of 12 knots and 1800 miles respectively. This vessel of all welded construction, is the second of these cutters built by Gulfport Boiler and Welding Works. Since 1930 this plant has launched more than 100 barges and a dozen tugboats and motor vessels, all of them being the welded type construction.*

## Correction

It is regretted that the air line shown on the map of West Virginia, published in the September MANUFACTURERS RECORD did not indicate that Huntington is a stopping place enroute where a major part of the state's air traffic is conducted.

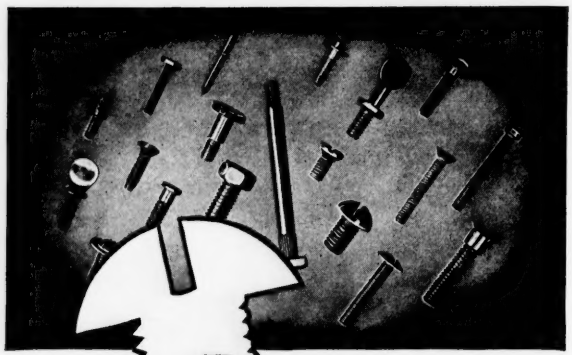
## Winston-Salem Water Improvements

(*Continued from page* 48)

lon Colonial design elevated tank, with outside trusses, at Raleigh, N. C. This structure is 36 feet, 3 inches to the bottom and has a range in head between the upper and lower water levels of 25 feet. The company has recently installed also a 750,000-gallon radial-cone bottom tank for the waterworks system at Dothan, Ala., the structure being 75 feet to bottom with a 25-foot range between the upper and lower water levels.

## Nylon for Bottle Brushes

Bristling filament made of nylon, new synthetic product developed by du Pont, has been adopted for bottle washing brushes used for high speed equipment, by Vockening, Inc., Brooklyn, N. Y., and C. Gerhardt, New York City. A brush completely bristled with nylon bristles is now being shown at the Coca Cola exhibit and the New York World's Fair. Because of a lower rate of replacement, nylon bristles afford a new economy, absorbing only one-fifth as much water in volume measurement as natural bristles, and absorb it more slowly. They last longer, it is claimed, and do not split or break, while their uniform diameter and non-spongy structure present a smooth, sanitary surface. Under the trademark of "Exton," nylon bristles have already been introduced in tooth brushes, hair, and nail brushes.

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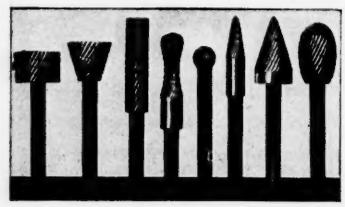

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